Volume 5, Number 3 $3.50 November/December 1987

TEACHING and computers

EFFECTIVE TEACHING

+

SUPER C CURRICULUM

+

CLASSROOM COMPUTERS

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COMPUTING THE MADELINE HUNTER WAY

SCHOLASTIC

Finally. Mac-like desktop publishing that puts it all together.

Page Mode. Text Mode. Graphics Mode.

Page layout. Word processing. Graphics creation. And you.

Welcome to Springboard Publisher.™

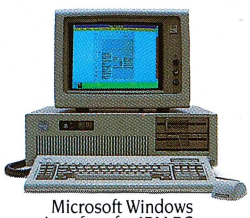
Springboard Publisher is the breakthrough in desktop publishing that Apple II® and IBM® PC owners have been waiting for.

It is the first Mac-like desktop publisher to combine powerful page layout, word processing, and graphics creation together in a single program.

There's nothing else like it.

Desktop publishing everyone can use every day.

Mac-like interface for Apple II.



Microsoft Windows interface for IBM PC.

One integrated program instead of three separate programs.

Many desktop publishers make you juggle three different programs every time you want to create a page.

But with Springboard Publisher, everything you need is tied together into a seamless, integrated environment, so you can move between the page, text, and graphics modes without ever having to juggle programs or leave your page. What could be more natural?

You'll be publishing in minutes, not days.

Springboard Publisher puts its power at your fingertips. Mac-like pull down menus give you instant access to all features with the touch of a key or the click of a mouse.

To add, edit, or rearrange text or graphics anywhere on your page, you just move your cursor to that area, click, and you're there. Automatically switched to the page, text, or graphics mode, so you're ready to work.

It's really that simple.

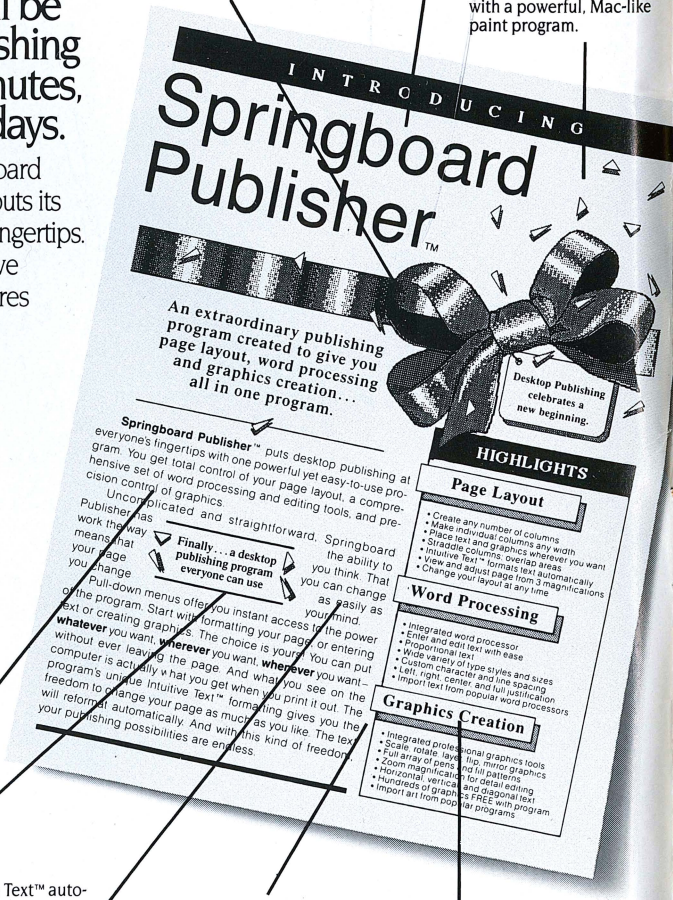
Never leave your page.

With Springboard Publisher, you work right on your page, so what you see is what you get.

Import professionally drawn art from popular graphics programs.

Customize character and line spacing.

Draw right on your page with a powerful, Mac-like paint program.



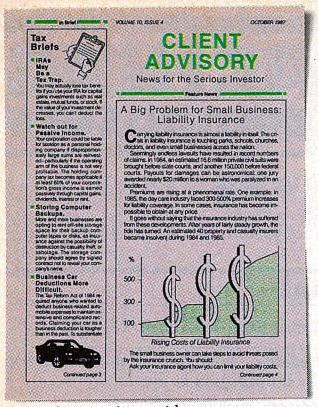
Write and edit with full featured, built-in word processor, or import text from popular word processing programs.

Overlap text or graphics anywhere; resize, reshape, or reposition them anytime.

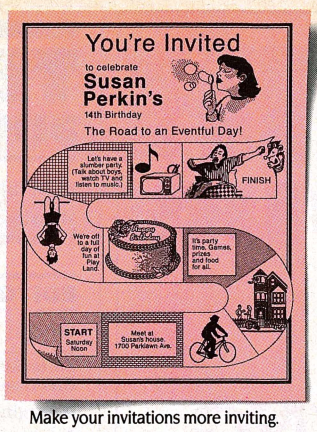
Intuitive Text™ automatically rewraps around graphics whenever you change your layout.

Select up to nine individually sized columns; customize gutter width.

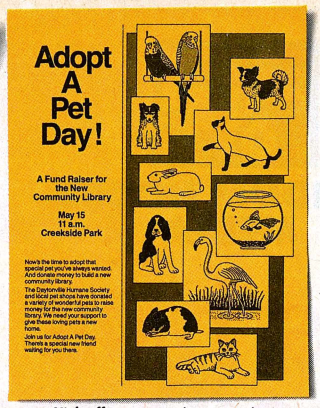
Add text to graphics—even diagonally.



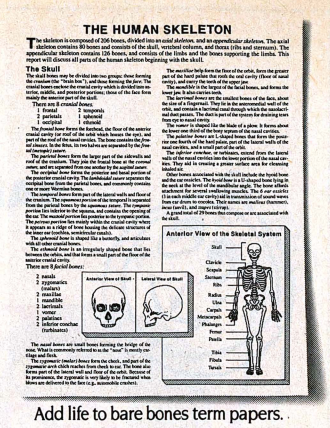
Communicate with customers.



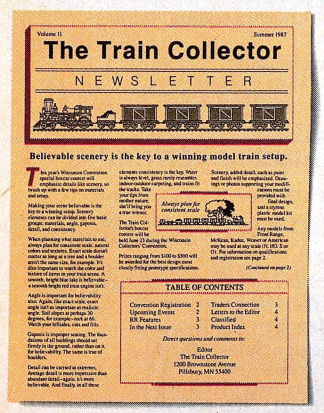
Make your invitations more inviting.



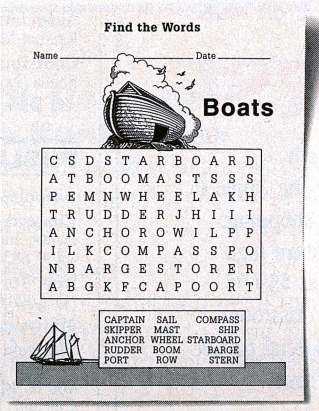
Kick off a community campaign.



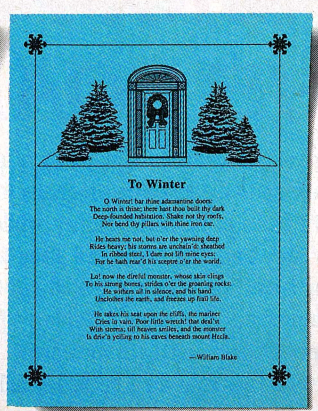
Add life to bare bones term papers.



Keep your club on the right track.



Create worksheets that really work.



Express yourself poetically.

Get down to business.

You can size your columns individually, then add inset text and graphics frames anywhere on your page—even overlapping each other and straddling columns.

You can enter and edit text with the integrated, full featured word processor. Or you can import text from popular word processing programs.

Either way, you're free to mix type fonts, styles, and sizes (9 to 72 pt.) in any combination, and change them at any time.

You can also draw right on your page, choosing from a richer palette of automatic drawing tools and special effects than most paint programs offer.

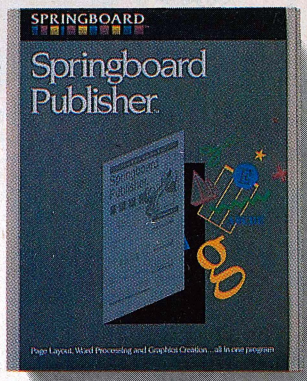
Or you can import pre-drawn art from Springboard's Works of Art™ series and Clip Art Collections,™ or other popular graphics programs.

Change your mind, experiment with ideas.

Springboard Publisher gives you the freedom to put whatever you want, wherever you want, whenever you want.

You can resize individual columns at any time. And when you resize, reshape, or reposition your inset text and graphics frames, Springboard Publisher's Intuitive Text™ automatically reformats itself around them, even in multi-page documents.

Springboard Publisher makes changing your page almost as easy as changing your mind. So, for the first time, you're really free to experiment with ideas.



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Laser power and more!

Springboard Publisher supports quality printing on dot matrix printers, including 24 pin printers. Add the *Springboard Publisher™ Laser Driver* and you get Adobe PostScript™ support for near typeset quality output.

Need ideas? Add *Springboard Publisher™ Style Sheets-Newsletters*, and get dozens of professionally designed newsletter page layouts to which you can easily add your own text and graphics.

No time to draw? Add *Works of Art,™* a new family of art packages designed to work with Springboard Publisher.

Choose the Assortment, Education, or Holiday Series. Each volume contains over 500 works of art.

FREE Works of Art™ Our way of saying "Welcome to Springboard Publisher."

Buy Springboard Publisher, and get the Works of Art™ volume of your choice—a $39.95 retail value—FREE from Springboard.

Start putting it all together today. Call **1-800-992-2619, ext. 351** for a FREE Springboard Publisher brochure. Or see your Springboard dealer for details.

SPRINGBOARD™

Springboard Software, Inc.,
7808 Creekridge Circle,
Minneapolis, MN 55435

Suggested Retail Prices:	Apple II
Springboard Publisher™	$139.95
Springboard Publisher™ Laser Driver	$39.95
Springboard Publisher™ Style Sheets	$29.95
Works of Art™	$39.95 ea.

IBM pricing to be announced.

In Canada call 612-944-3915

Requirements: Apple IIe, IIc, IIGS; 128K. IBM-compatibles: 512K, MS-DOS 2.1 or newer. Microsoft Windows. 5¼" or 3½" disks available for both.

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RANDOM HOUSE MEDIA

IT'S TIME TO GO SHOPPING WITH THE BOARS!™

Count on the Boars to bring your students to new levels of math understanding. These two new software learning programs for the Apple II Series, 64K, teach the real life skills of handling money while shopping, and telling time. The Boars' Store and The Boars Tell Time feature high resolution graphics, full-color animation, and are priced right at $39.95. Both programs include a comprehensive Teacher's Guide with classroom activities and Blackline Masters for additional reinforcement. Special packet of 10 coloring books for $5.95 is available for The Boars Tell Time.

CALL NOW FOR YOUR FREE MICROCOMPUTER SOFTWARE CATALOG!

1-800-638-6460 ext. 5000
In Alaska, call collect 301-848-1900
In Maryland, call toll-free 1-800-492-0782

OR WRITE: Random House Media, 400 Hahn Road, Department 459, Westminster, MD 21157

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TEACHING and computers

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ABC

TEACHING and computers™

Published by Scholastic Inc.
November/December 1987, Vol.5, Issue 3

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COVER ILLUSTRATION BY GREG COUCH

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COMING IN JANUARY

The Ultimate Software Shopping List

We've chosen more than 150 top-notch packages to match the content areas, subjects, and grade levels you teach — and added a selection of teacher utility programs for good measure.

The Golden Nautilus

Where math and science meet, the Logo turtle and friends encounter one of nature's most clever architects.

Weather Wise

A colorful collection of meteorological facts, computer fun, and more, our January poster will help take the edge off winter's bluster.

The Think Tank

With this month's problem solving task cards, your students will build their analytical skills as they construct complex designs from simple Logo shapes.

FROM THE EDITOR

Lessons in Planning

Some people might consider planning a bore — but computer-using teachers know differently. For you, planning means opportunity and creative challenge.

Whether it's for a single lesson or a whole year's worth of activities, planning provides computer educators the opportunity to weave together the best of three worlds: teaching technique, instructional content, and computer technology. That's what our cover feature is all about this issue. Madeline Hunter is perhaps the best known advocate and theorist of teacher planning in American education; much of her work has focused on describing and categorizing the decisions every good teacher makes intuitively, so that these decisions can be made deliberately, in service of specific educational goals. For Aileen Johnson and Jack Sutton, two of Dr. Hunter's protégés at the UCLA lab school, the arrival of 25 Macintosh Plus computers in their classroom was a golden opportunity. It was a chance to combine the Hunter decision making model, an "out of this world" multi-disciplinary curriculum, and essential computer skills. Aileen and Jack describe their step-by-step planning process in **Computing the Madeline Hunter Way,** which begins on page 19.

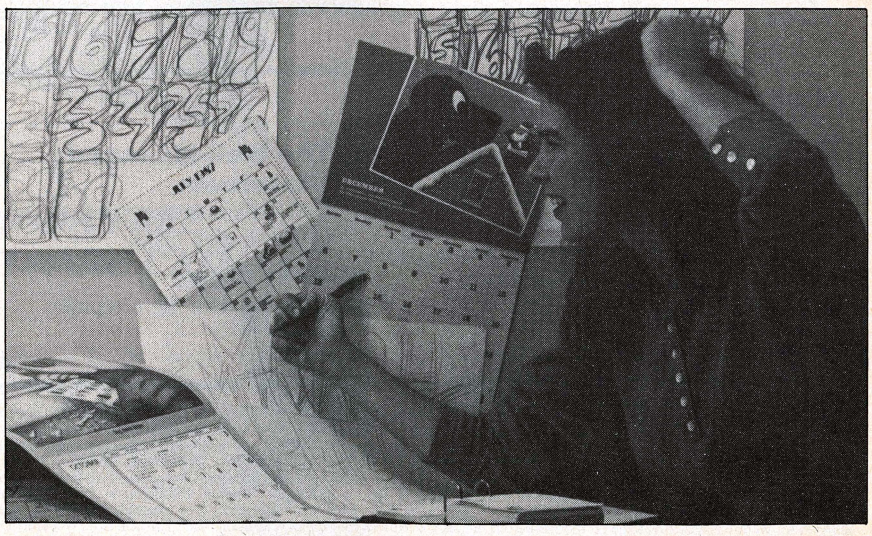
What do you call 30 kids and one computer? How about 30 kids and one half hour computer lab a week? Columnist Susan Jacoby would call either one a challenge. In **The Well-Managed Classroom,** page 11, Susan offers advice on planning effective computer projects under less-than-ideal conditions (are there any other kind?). For scheduling, making assignments, tracking progress, and offering feedback, Susan's planning tool of choice is the computer itself. Like any good tool, she's discovered, it lends itself well to creative solutions.

Of course, teaching isn't the only life pursuit which requires expertise in planning. The ability to plan is an essential skill for everybody. That's one good reason for your students to tackle **The Great Debates** class project on page 32, with its detailed directions for planning (and refuting!) the ultimate in persuasive oratory. (The other good reason is *fun!*)

Your students will also benefit from another dip into **The Think Tank,** page 12, our regular task card series on problem solving. When they're through with this issue's set of cards, your students will be speaking pig Latin, "hog wild," and a code language all their own. They'll also be fluent in sequencing — a basic planning skill.

One final word on plans: Best wishes for *yours* for the upcoming holidays, from all of us at *Teaching and Computers.*

M. Revenaugh



Managing editor Mickey Revenaugh refines plans for the current publication year.

What we've learned in school over the last ten years can be summed up in five words.

The Apple Unifie

After a decade of perfect attendance, we couldn't help but learn a very important lesson.

No two school systems are the same.

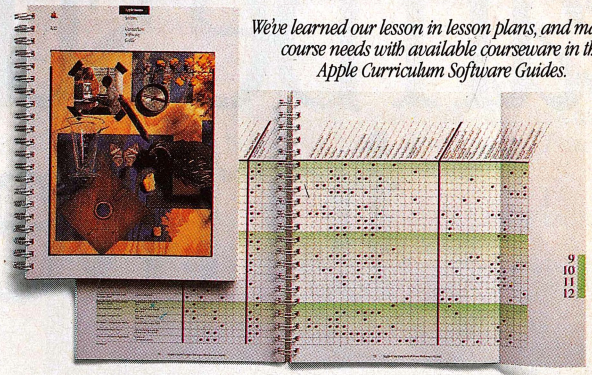
And no two have the same computing needs.

So to meet the requirements of diverse teaching, administrative and student bodies, we developed a system.

The Apple® Unified School System.

It's an impressive array of products and services from which any school, big or small, can select comprehensive solutions for their particular computing needs.

The Apple IIe and Apple IIGS form a great team for any school.



We've learned our lesson in lesson plans, and matched course needs with available courseware in the Apple Curriculum Software Guides.

Whether it's labs for special education, help with curriculum planning, or a new approach to old administrative chores.

The best way to do all this, we've learned, is to have something for every body.

For students in K-8, there's the Apple IIe. With the world's largest library of educational software, it's at the head of the class.

For high school students, there's the Macintosh™ Plus. It's a great study aid for college prep courses, runs the most advanced business software around,

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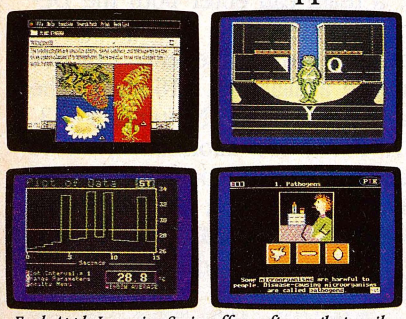
d School System.

and is the computer of choice at leading universities.

And there's the Apple IIGS.™ It can run virtually all existing Apple II programs. And has an incredible ability to show and tell.



Each Apple Learning Series offers software that easily integrates the computer into the classroom.

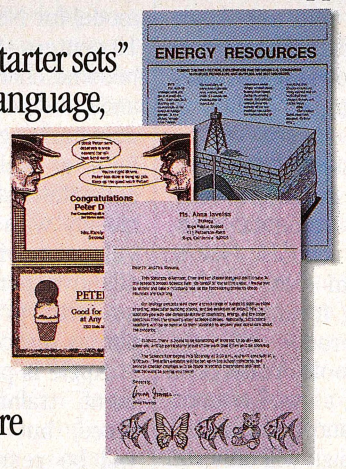
Show with superior graphics and a palette of over 4,000 colors. Tell with a synthesizer that can simulate anything from a French teacher to a French horn.

The IIGS is also an invaluable teacher's aide. As a powerful workstation, it excels in managing everyday classroom tasks, like writing reports, attending to attendance, and making the grades.

What's more, we've made it easy to integrate the Apple II family into the classroom with the Apple Learning Series.

These software "starter sets" are available for Early Language, Life Science and Health Education, with many more to come.

We've even done our homework so teachers and curriculum coordinators can easily choose software that meets their needs.



With desktop publishing, any school paper can look first class.

The result is the Apple Curriculum Software Guides. These indispensable manuals can help you select the best rated software for math, science, reading, writing and language skills. In other words, most of the subjects you teach.

Naturally, not all of our ten years were spent in the classroom. We've spent our fair share of time in the principal's office, too.

Which brings us to administrators and the Macintosh SE. The computer powerful enough to run an entire school district. With point-and-click technology, anyone can learn to use the SE without costly training. So anyone can take care of anything from

Put a Macintosh and LaserWriter together and you've just expanded the power of the administration.

tracking attendance to preparing budgets.

Add a LaserWriter® Printer and you've got a desktop publishing system. And with it, the power to produce more persuasive presentations, more interesting newsletters, even graphic proposals for additional Apple computers.

Of course as good as all of the above products are, they don't work by themselves. That's why our school system has a support system.

For instance, in the last three years we helped train more than 15,000 teachers and administrators to make better use of their computers.

And to help educators be as productive in their living rooms as in their classrooms, we developed the Educator Buy Program: a special discount on the most popular Apple products in school.

We've even made it easy to learn how our school system can work for yours. Just call 800-538-9696, extension 480, for more information.

The Apple Unified School System.

You'll find it's the most comprehensive computing program ever developed for education.

And, thanks to you, we're learning new ways to expand it every day. The power to be your best.™

Circle 3 on Product Info Card.

UPDATE

NEWS FOR COMPUTER-USING TEACHERS

LOGO FELLOWSHIPS

Up to four educators will spend three weeks next summer at the University of Virginia, designing projects using the Logo computer language.

The UVA Summer Logo Fellowship Program, now in its third year, is a partnership between UVA's Curry School of Education and Logo Computer Systems, Inc. (LCSI). The Fellowship, which provides up to $3,800 for stipend, travel, and expenses, was established "to recognize creative teachers using Logo at all grade levels, and to extend the cutting edge of computer education to the public."

Educators selected for the program will develop their ideas at UVA using the resources of the Curry School. They will also be encouraged to disseminate their projects by writing articles about them, and by discussing them at educational conferences.

Applications for the Fellowship, which must be completed and returned by December 21, 1987, can be obtained by writing to The University of Virginia Summer Logo Fellowship Program, Curry School of Education, Ruffner Hall, Charlottesville, VA 22901.

RADIO SHACK LAUNCHES OPPORTUNITY PROGRAM

Through November 30, 1987, teachers and administrators are eligible for discounts on Tandy MS-DOS computers through Radio Shack's new Teacher Opportunity Program (T.O.P.). With these special discounts, prices for the popular Tandy 1000 machines are as follows:

- Tandy 1000 HX, $859;
- Tandy 1000 SX, $999;
- Tandy 1000 TX, $1,239;
- Tandy 1000 SX with Trackstar Apple Emulator Board, $1,349.

The same systems regularly range from $1,028 for the Tandy 1000 HX to $1,548 for the Tandy 1000 SX with Trackstar Apple Emulator Board.

The discounts are available to educators at any Radio Shack Computer Center, Radio Shack Plus Computer Center, Radio Shack store, or participating dealer nationwide.

"PRINT SHOP" COMPANIONS DISCOUNTED

Educators who mail-order *Print Shop Companion* and *Print Shop Graphics Library Holiday Edition* before the end of 1987 will be entitled to a 20 percent discount on each product. Along with the purchase, they will also receive a *Print Shop* teacher's guide and a *Print Shop Companion* backup disk free.

Through December 31, 1987, the Apple II series version of each program, usually priced at $64.90, will be available for $51.95. The IBM PC/PCjr and compatibles version, regularly priced at $85.90, will be $67.95. The Commodore 64/128 version, regularly priced at $59.90, will be $47.95.

The shipping cost for one item is $3.50; add $1 for each additional item.

To order, contact Broderbund Software-Direct, P.O. Box 12947, San Rafael, CA 94913-2947; 416/492-3500.

ACADEMIC COMPUTER CONTEST

Middle school and junior and senior high school students who use Apple computers are invited to compete in the ninth National Knowledge Master Open on Wednesday, December 2, 1987.

No travel is necessary to participate in the biannual academic computer competition — students compete from their own schools. Nor is there a limit on team size: in past years, teams ranging from one person to 110 have entered.

Participating schools receive a software disk by mail, as well as complete contest rules and procedures. The program on the disk will only run when participants enter a special password, which they receive on the day of the contest. The password allows students one-time access to 200 questions derived from all secondary curriculum areas. Points are awarded based on speed and accuracy in answering the questions.

At the end of the contest round, which lasts approximately two hours, the computer displays a coded score. The score is phoned in to Academic Hallmarks, the sponsor of the contest, where it is compared against the other entries. Top teams receive trophies, software, and jerseys.

The entry fee, which includes the cost of the contest disk, is $30; for $45, a team can enter both the December contest and the Spring '88 Knowledge Master event. Practice disks are available at $16 each. The entry deadline is November 13, 1987. For more information, or to enter your school, contact Academic Hallmarks, P.O. Box 998, Durango, CO 81302; 800/321-9218. In Colorado, Hawaii, and Canada, call 303/247-8738.

APPLE ESTABLISHES NATIONAL SPECIAL EDUCATION ALLIANCE

In an effort to provide disabled individuals with greater access to microcomputer information and resources, Apple Computer has established the National Special Education Alliance (NSEA).

Working with the Disabled Children's Computer Group of El Cerrito, California (whose program is the model for NSEA), Apple has selected 10 centers throughout the country to become charter members of the Alliance. Initially, the centers will conduct training workshops and product fairs, as well as individual and group consultations. The centers will work closely with Apple and some 50 developers of special software and adaptive peripheral devices, as well as with professional associations across the country.

Apple is providing computer equipment, training, and technical assistance, but the centers themselves will be responsible for fund raising and long-term development. They will not be restricted to working only with Apple computers.

Applications to join NSEA are now being accepted. For more information, contact Apple Computer Inc., Office of Special Education/NSEA, 20525 Mariani Ave., M/S 36-M, Cupertino, CA 95014, or call Robin Coles or Jacquelyn Brand at 408/973-6087. ■

PENINGS

CLASSROOMS

"Kidbots" and their "parents" (in foil) prepare for Far Out Festivities.

WHAT ARE YOU GIVING YOUR ROBOT FOR CHRISTMAS THIS YEAR?

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If you're interested in incorporating robots into your classroom plays, Jan has some general suggestions that she'd love to share. You can contact her c/o The Francis School, 715 West Francis St., Ontario, CA 91762.

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Circle 4 on Product Info Card.

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LOGO FELLOWSHIPS

Up to four educators will spend three weeks next summer at the University of Virginia, designing projects using the Logo computer language.

The UVA Summer Logo Fellowship Program, now in its third year, is a partnership between UVA's Curry School of Education and Logo Computer Systems, Inc. (LCSI). The Fellowship, which provides up to $3,800 for stipend, travel, and expenses, was established "to recognize creative teachers using Logo at all grade levels, and to extend the cutting edge of computer education to the public."

Educators selected for the program will develop their ideas at UVA using the resources of the Curry School. They will also be encouraged to disseminate their projects by writing articles about them, and by discussing them at educational conferences.

Applications for the Fellowship, which must be completed and returned by December 21, 1987, can be obtained by writing to The University of Virginia Summer Logo Fellowship Program, Curry School of Education, Ruffner Hall, Charlottesville, VA 22901.

RADIO SHACK LAUNCHES OPPORTUNITY PROGRAM

Through November 30, 1987, teachers and administrators are eligible for discounts on Tandy MS-DOS computers through Radio Shack's new Teacher Opportunity Program (T.O.P.). With these special discounts, prices for the popular Tandy 1000 machines are as follows:

- Tandy 1000 HX, $859;
- Tandy 1000 SX, $999;
- Tandy 1000 TX, $1,239;
- Tandy 1000 SX with Trackstar Apple Emulator Board, $1,349.

The same systems regularly range from $1,028 for the Tandy 1000 HX to $1,548 for the Tandy 1000 SX with Trackstar Apple Emulator Board.

The discounts are available to educators at any Radio Shack Computer Center, Radio Shack Plus Computer Center, Radio Shack store, or participating dealer nationwide.

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PC/PCjr and compatibles version, regularly priced at $85.90, will be $67.95. The Commodore 64/128 version, regularly priced at $59.90, will be $47.95.

The shipping cost for one item is $3.50; add $1 for each additional item.

To order, contact Broderbund Software-Direct, P.O. Box 12947, San Rafael, CA 94913-2947; 416/492-3500.

ACADEMIC COMPUTER CONTEST

Middle school and junior and senior high school students who use Apple computers are invited to compete in the ninth National Knowledge Master Open on Wednesday, December 2, 1987.

No travel is necessary to participate in the biannual academic computer competition — students compete from their own schools. Nor is there a limit on team size: in past years, teams ranging from one person to 110 have entered.

Participating schools receive a software disk by mail, as well as complete contest rules and procedures. The program on the disk will only run when participants enter a special password, which they receive on the day of the contest. The password allows students one-time access to 200 questions derived from all secondary curriculum areas. Points are awarded based on speed and accuracy in answering the questions.

At the end of the contest round, which lasts approximately two hours, the computer displays a coded score. CO 81302; 800/321-9218. In Colorado, Hawaii, and Canada, call 303/247-8738.

APPLE ESTABLISHES NATIONAL SPECIAL EDUCATION ALLIANCE

In an effort to provide disabled individuals with greater access to microcomputer information and resources, Apple Computer has established the National Special Education Alliance (NSEA).

Working with the Disabled Children's Computer Group of El Cerrito, California (whose program is the model for NSEA), Apple has selected 10 centers throughout the country to become charter members of the Alliance. Initially, the centers will conduct training workshops and product fairs, as well as individual and group consultations. The centers will work closely with Apple and some 50 developers of special software and adaptive peripheral devices, as well as with professional associations across the country.

Apple is providing computer equipment, training, and technical assistance, but the centers themselves will be responsible for fund raising and long-term development. They will not be restricted to working only with Apple computers.

Applications to join NSEA are now being accepted. For more information, contact Apple Computer Inc., Office of Special Education/NSEA, 20525 Mariani Ave., M/S 36-M, Cupertino, CA 95014, or call Robin Coles or Jacquelyn Brand at 408/973-6087. ■

CLASSROOM HAPPENINGS

WHAT'S HAPPENING IN COMPUTER CLASSROOMS

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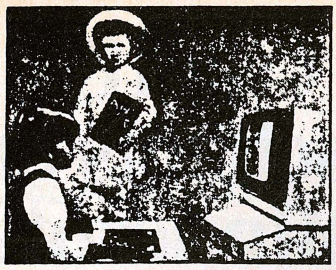

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CLASSROOM HAPPENINGS

"That means no Smurfs or Popples!" Thomas tells his students every autumn.

Using an *Appleworks* data base program, the students check to see whether one of Thomas' former students has already input information about his or her stuffed pet. If so, the student prints out the animal's record, which contains classification information from phylum to species, plus extra facts, such as whether the animal is endangered or extinct.

If a student's particular stuffed animal is not yet a part of the data base, then it's up to the student to go to the library, research the classification information, and enter it into the computer him- or herself.

Next, each child uses a graphic arts software program to make up a name tag for his or her addition to the classroom zoo. The tags, containing phylum and species information, are pinned to the animals, which are then placed in a locked glass display cabinet right outside the classroom for everyone in the school to see.

A second grader from the Hearn Elementary School in Frankfort, KY, demonstrates Project Vision for Kentucky governor Martha Layne Collins.

PROJECT VISION

"It was a cold winter morning in a little mining town in the mountains of Eastern Kentucky. A little girl awoke long before dawn, slipped out of bed, and quietly put on her school clothes. Then she walked into her parents' bedroom and timidly aroused her parents from a deep sleep.

"When the mother asked the child what she was doing up, the little girl responded: 'I get to be first on the computer today, Mommy. I want to make sure that I'm not going to miss the school bus today!' "

Martha Layne Collins, the governor of Kentucky, and herself a former school teacher, related that story recently at the unveiling of Project Vision, a futuristic teaching tool developed by the Kentucky Departments of Education and Information Systems.

An interactive tool utilizing laser disc and computer technology, Project Vision is geared for remedial math students at the first and second grade levels. In response to a video display and sound system, students answer questions via a touch screen monitor. A correct answer initiates a positive response, such as a life-like rocket launching, or the sound of a train whistle as a train pulls out of the station. If a child answers a number of questions incorrectly, the system automatically repeats the sequence in which the difficulty was encountered.

"Even a student's response time for each set of problems is recorded by the computer," said Governor Collins proudly at the unveiling. "And Project Vision is very simple to operate. No computer skills are required."

For more information about Project Vision — which operates on an IBM PC/XT, AT, or PS/2 Model 30, with a hard disk of at least 10 megabyte capacity — contact the Department of Information Systems, Commonwealth of Kentucky, Capitol Building, Frankfort, KY 40601; 800/255-0737. ■

BY JACKIE GLASTHAL

 Circle 6 on Product Info Card.

Managing Computer Projects

BY SUSAN C. JACOBY

Like everything else you do in your classroom, computer projects must be managed if they are to meet your expectations and your students' needs. Whether you have a single computer in your classroom or use a central computer lab, the computer itself can help you meet the management challenge.

Let's assume you have designed a curriculum-based computer project with clearly defined objectives and an overall time frame. Your next step should be to sit down with your word processor and break the project into sequential phases. Decide which of these phases require students to be on-computer, and which do not. Estimate how many hours or class periods each phase will take; if you're in a one-computer setup, remember to multiply the on-computer time required per student by the number of students in your class.

Next, boot up a calendar program such as *Create a Calendar* (Epyx, Redwood City, CA). Within your overall time frame, enter all school holidays and other special events; if you're in a lab situation, make note of your regular lab period. Then work forward from your start date or backwards from your deadline to schedule the entire project. If you're in a one-computer classroom, you may need a week or more for each on-computer phase, to assure adequate access for each student or team. If you're in a lab, you'll need to plan a very thorough pre-instruction period to make the most of your limited lab access. In either case, build in a cushion of extra time, "just in case."

Although every phase of a computer project requires careful management, let's focus now on those precious on-computer periods.

ONE-COMPUTER CLASSROOM

Within each project's on-computer phase, you'll need to assign your students specific time slots. If your calendar program offers a daily or weekly format, you might choose one of these for detailed scheduling. Or you can use your data base program or word processor — and build in a way to track your students' progress at the same time.

With a data base program, set up a data record with the following fields: DATE, TIME, STUDENT, ASSIGNMENT, and RESULTS. Create a separate record for each date and time, and fill in the student name(s) and assignment. Leave only the RESULTS field blank — your students will fill this in later with their own progress reports. Use your program's Report or Master Files function to print out an overall assignment sheet to post. As they complete their time at the computer, have students call up their individual records and fill in the RESULTS field. Or you can make a separate record-by-record printout for them to fill in by hand.

COMPUTER LAB

A well-thought-out seating chart for your computer lab not only shortens "settling down" time at the beginning of the period; it also facilitates placement of students where they can be of most help — and least annoyance — to each other. You can make a simple chart with your word processor. Just set a tab for each computer station location; mark each with its number or an X. Then type in and rearrange student names as you plan each project.

When your students work in computer teams, you want to be sure each student understands his or her role, and that the work is shared evenly. Use your word processor or a program like *The Print Shop* (Broderbund, San Rafael, CA) to make a handout about team roles and ground rules (for example, "The Inputter types the team's information into the computer. The Checker reads the information out loud as the Inputter types, and watches for mistakes. When the teacher gives the signal, switch roles!").

"MY LIFE STORY" WRITING PROJECT
Computer Assignment Log
Room 65 - Big Springs Elementary - Ms. Loew

DATE	TIME	STUDENT	ASSIGNMENT
11/2/87	9:30-10:00	Allan Elfman	Outline story
11/2/87	10:00-10:30	Marjorie Lutz	Finish draft
11/2/87	10:30-11:00	Betty Wagner	Finish draft
11/2/87	11:00-11:30	Charu Gupta	Edit draft

Use your word processor to create a master schedule for the classroom computer.

If you use a word processor, the above field names could serve as column headings across a page. After you've made a master printout to post, insert several lines between entries for students to type in their results on disk (or write them in on a new printout).

Since a one-computer classroom generally means you're less available to help the student in the computer corner, consider creating a customized HELP disk. Using your word processor, type in any tips and reminders that your students are likely to need the most. Save specific project and software information under unique file names, and create a "menu" file to list them all. If you want to limit the disk switching your students will have to do, print out the contents of this HELP disk periodically and keep it in a notebook by the computer.

While you have *The Print Shop* or your word processor booted up, create a customized project assignment and comment sheet for each student or team. Type in the date, student name(s), computer station number, and a brief summary of the assignment. At the bottom of the sheet, include a space labeled "Results" with several blank lines. Then, at the end of the lab period, have students write in their progress reports by hand. ■

Susan C. Jacoby is an educational computing consultant based in Connecticut.

THE THINK TANK

TASK CARDS THAT TEACH THINKING SKILLS

Order in the Classroom!

Each month this column supplies four student activity cards for sharpening problem solving skills. This month, sequencing skills are taught through a variety of Logo-based language arts activities.

SEQUENCING: ORDER AND PATTERN

In sequencing, children explore the arrangement of their environment. Children learn early to arrange objects according to shape and size, organize numbers from biggest to smallest, and place words in alphabetical order. Even in music, young children learn to clap out patterns of beats and rhythms.

By placing numbers in ascending and descending order, a child begins to think in terms of "greater than" and "less than." By organizing alphabetically, a child learns a way to do library research and recognize where his or her name will appear on a teacher's attendance roster. Simple patterns in shape and sound provide the key to understanding more complex arrangements. As they become adept at sequencing, children gain the skills they need to arrange tasks and ideas in logical order.

PREPARATION

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THE PROCEDURES

```
TO NOW
  MAKE "ENDING PICK [ATON IRAZ EPN]
  MAKE "BEGIN PICK [H CA KEL]
END

TO WORDPARTS
  MAKE "NOUN [HOUSE BEAR COBRA WATERMELON PRINTER]
  MAKE "ARTICLE [ONE A THE]
  MAKE "ADJECTIVE [RED BLUE SILLY SINGING SLOPPY]
  MAKE "VERB [RUNS WALKS SLEEPS HOPS GURGLES]
  MAKE "ADVERB [HAPPILY ODDLY SWIFTLY SURELY]
END

TO PICK :LIST
  OP ITEM (1 + RANDOM COUNT :LIST) :LIST
END

TO CONSTRUCT
  WORDPARTS
  PRINT (SE PICK :ARTICLE PICK :ADJECTIVE PICK :NOUN PICK :VERB PICK :ADVERB)
END

TO WILD :SENT
  IF EMPTYP :SENT [OP [ ] ]
  OP SE PIG FIRST :SENT WILD BF :SENT
END

TO LATIN :SENT
  MAKE "BEGIN "
  MAKE "ENDING "AY
  IF EMPTYP :SENT [OP [ ] ]
  OP SE PIG FIRST :SENT LATIN BF :SENT
END

TO PIG :WORD
  IF MEMBERP FIRST :WORD [A E I O U] [OP (WORD :BEGIN :WORD :ENDING)]
  OP PIG WORD BF :WORD FIRST :WORD
END
```

PRE-TASK CARD ACTIVITIES

- Define the term *pattern* for your students (*a repeated formation or design*). Can students point to items in the classroom that follow a pattern? (*Examples might include a plaid shirt or the desk arrangement.*) What makes each pattern a pattern? What makes it different from the others?
- Provide students with a list of words, such as *hat, sat, fat, that, cat.* What pattern does this "word family" follow? (*The last two letters* are *the same.*) How does this affect the list of words as a whole? (*The words rhyme.*) Does knowing the "a-t" word family help students pronounce the word "c-h-a-t"?
- To use this month's task cards, students must know how to create, define, and edit Logo procedures. They must also be familiar with parts of a sentence, including articles, adjectives, and adverbs.

TASK CARD ACTIVITIES

Task Card 1. Children identify a specific sentence pattern (*Article-adjective-noun-verb-adverb*).

Task Card 2. Students edit a Logo procedure so that the sentences it generates follow a new pattern.

Task Card 3. Students identify the pattern used in the made-up language called "pig Latin."

Task Card 4. Students identify the pattern in a made-up language called "hog wild." They then develop their own coded language.

POST-TASK CARD ACTIVITIES

- Have students experiment with the CONSTRUCT procedure. What is the longest sentence pattern your students can create, using parts of speech that they know? Will students have to add new categories, or words to the WORDPARTS procedure?
- If students are familiar with Logo list processing, challenge them to write a program that generates sentences in their own made-up language (created at the end of Task Card 4). Students may want to follow the pattern found in the procedures PIG and LATIN or NOW and WILD. ■

Thomas E. Boudrot, author of *Byte-Sized Activities: The Generic Word Processing Book*, is an education specialist for the Division of Educational Technology, Texas Education Agency, Austin, TX.

Philip Scheuer

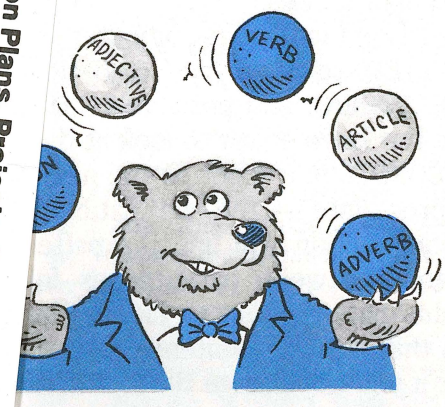
SEQUENC
TAS

...nce Maker

Did you ... STRUCT again. What pattern do just like s... s follow?
the sente... STRUCT two or three more times.
the patte... ences all follow the same pattern?

ARTICL...
The
One
A

1. Loa...
teacher...
2. Ins...
TERN ...
3. Ty...
compu...



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ZS39046 The Computer Ideabook		19.95	
ZS39047 Holiday Computer Activities		17.95	
ZS64621 Bargain Pack: All 7 products above		17.95	
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...y Alktay?

3 TASK CARD

Complete Task Card 2 before you try the activities on this card.

Can you read the title of this card? The title is written in a nonsense language, known as pig Latin. Pig Latin follows a pattern, just as the English language does. The title of this task card, translated, reads "Can Pigs Talk?" Now can you figure out the pattern that pig Latin follows?

1. Load Logo into your computer. Then insert the PATTERN disk. Type LOAD "PATTERN (or READ PATTERN), and press RETURN.
2. When you think you know the pattern that pig Latin follows, think of a sentence and, in your mind, translate it into pig Latin.
3. Type PRINT LATIN. Then, in brackets ([ ]), type the sentence that you have in mind. Press RETURN. The computer will translate the sentence into pig Latin for you! Does the translation you thought of match the computer's?

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SIN
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TO WI
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  MAK
  IF EM
  OP S
:SENT
END

TO PIG :
  IF ME
[OP (WO                ENDING)]
  OP PIG WORD BF :WORD FIRST :WORD
END
```

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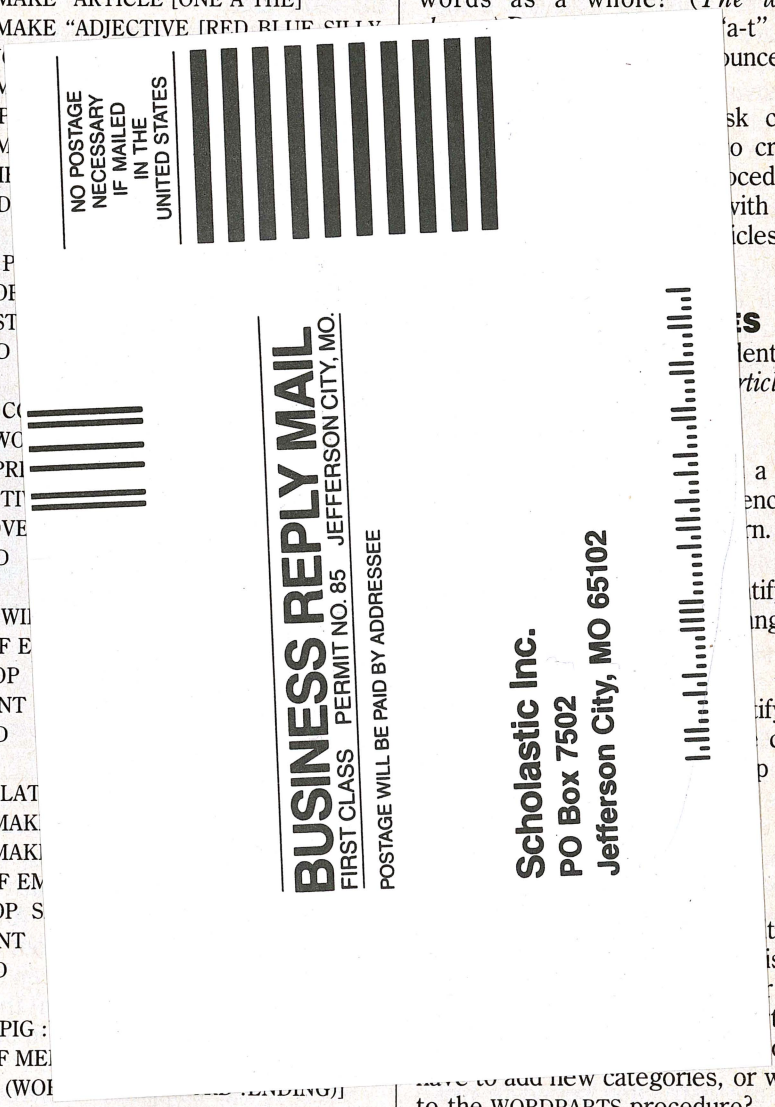
- Provide students with a list of words, such as *hat, sat, fat, that, cat.* What pattern does this "word family" follow? (*The last two letters* are *the same.*) How does this affect the list of words as a whole? (*The words* ... a-t" word ... ounce the ... sk cards, ... o create, ... ocedures. ... vith parts ... icles, ad-



... ES ... lentify a ... *rticle-ad-* ... a Logo ... ences it ... n. ... tify the ... nguage ... ify the ... called ... p their ... th the ... is the ... stu- ... ts of ... dents have to add new categories, or words to the WORDPARTS procedure?
- If students are familiar with Logo list processing, challenge them to write a program that generates sentences in their own made-up language (created at the end of Task Card 4). Students may want to follow the pattern found in the procedures PIG and LATIN or NOW and WILD. ■

Thomas E. Boudrot, author of *Byte-Sized Activities: The Generic Word Processing Book*, is an education specialist for the Division of Educational Technology, Texas Education Agency, Austin, TX.

Philip Scheuer

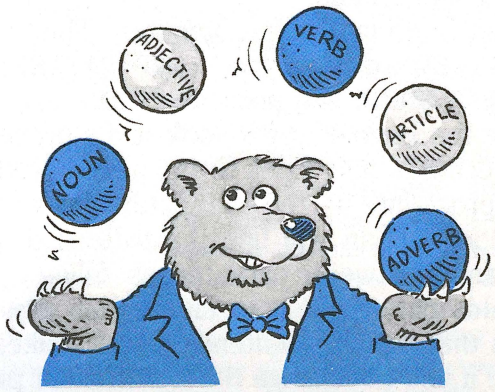
SEQUENCING 1 TASK CARD

The Silly Sentence Maker

Did you know that sentences follow patterns, just like squares on a checkered shirt? Look at the sentences below. All three sentences follow the pattern ARTICLE + NOUN + VERB.

ARTICLE	+ NOUN	+ VERB
The	boy	eats.
One	baboon	sings.
A	dinosaur	cries.

1. Load Logo into your computer. Ask your teacher for the disk of PATTERN procedures.
2. Insert the PATTERN disk, type LOAD "PATTERN (or READ PATTERN), and press RETURN.
3. Type CONSTRUCT and press return. The computer will construct a silly sentence.
4. Type CONSTRUCT again. What pattern do the sentences follow?
5. Type CONSTRUCT two or three more times. Do the sentences all follow the same pattern?



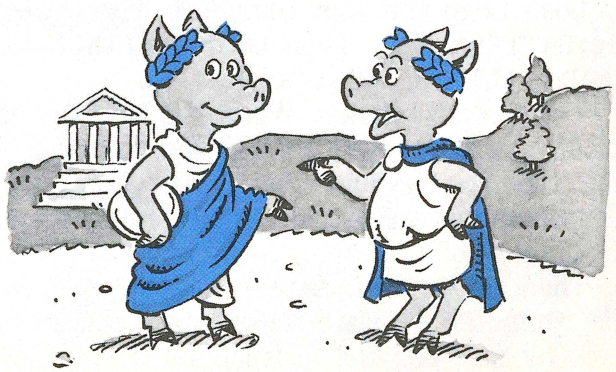
SEQUENCING 3 TASK CARD

Ancay Igspay Alktay?

Complete Task Card 2 before you try the activities on this card.

Can you read the title of this card? The title is written in a nonsense language, known as pig Latin. Pig Latin follows a pattern, just as the English language does. The title of this task card, translated, reads "Can Pigs Talk?" Now can you figure out the pattern that pig Latin follows?

1. Load Logo into your computer. Then insert the PATTERN disk. Type LOAD "PATTERN (or READ PATTERN), and press RETURN.
2. When you think you know the pattern that pig Latin follows, think of a sentence and, in your mind, translate it into pig Latin.
3. Type PRINT LATIN. Then, in brackets ([ ]), type the sentence that you have in mind. Press RETURN. The computer will translate the sentence into pig Latin for you! Does the translation you thought of match the computer's?



SEQUENCING 2 TASK CARD

Maker The Sentence Silly

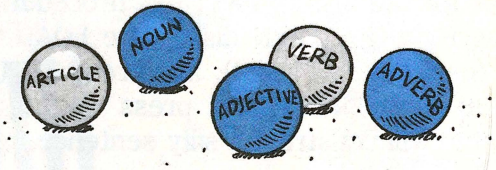
Complete Task Card 1 before you try the activities on this card.

Let's change the pattern that our silly sentence maker makes.

1. Load Logo into your computer. Then insert the PATTERN disk. Type LOAD "PATTERN (or READ PATTERN), and press RETURN.
2. Use the Logo editor to look at the procedure called CONSTRUCT. Look at the next-to-last line in the procedure — the one that begins with the word PRINT. Can you find the pattern that the commands between parentheses follow? How does this pattern help to create the silly sentences that the silly sentence maker makes?
3. See if you can change the CONSTRUCT procedure to make even sillier sentences. Change the words between parentheses so that the computer constructs sentences that follow this silly pattern:

adjective-article-adverb-verb-noun.

4. Define and run the CONSTRUCT procedure to see if it follows the new pattern correctly. Don't worry if it doesn't work the first time! Keep trying until you have it right!



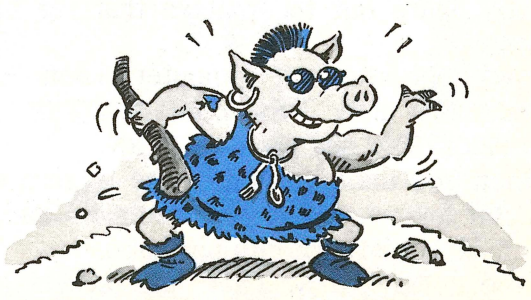
SEQUENCING 4 TASK CARD

Now Print Hog Wild!

Complete Task Card 3 before you try the activities on this card.

In addition to pig Latin, the computer knows another made-up language called "hog wild."

1. Load Logo into your computer. Then insert the PATTERN disk. Type LOAD "PATTERN (or READ PATTERN), and press RETURN.
2. Think of a sentence. When you have one in mind, type NOW PRINT WILD. Then, in brackets ([ ]), type the sentence that you have in mind. The computer will translate the sentence into the "hog wild" language.
3. Think of two or three more sentences. Have the computer translate these into hog wild as well, by following the instructions in step #2, above. Can you figure out the pattern that hog wild follows?
4. Go back to your seat, and make up your own coded language. Test your friends to see if they can figure out the pattern that your language follows. Don't forget to give your language an original name!



Counting on the Computer

The computer can provide a variety of mathematical readiness activities for young children. The numbers in the top row of a computer keyboard and the games included in this column teach number recognition, counting, addition and subtraction, and graphing.

PLANTING CORN ON THE NUMBER LINE

Celebrate Thanksgiving and teach the number row on the computer with the following activity.

Preparation: Get 45 kernels of dried corn (or unpopped popcorn) and a small bag. If you have a *Computergarten* Keyboard-on-the-Floor (Scholastic), use the top number row for this activity. If you do not, make a large number row for the floor of your classroom using butcher paper and thick lined markers.

Activity: Sit the children in a circle close to the computer, the number row, and the pile of corn kernels. Tell students the story of how the Indians helped the pilgrims learn to plant corn. Because the Indians helped them, the pilgrims were able to grow their own food. The pilgrims celebrated by having a big feast and inviting the Indians. This was the first Thanksgiving.

Tell children they are going to pretend to plant corn like the pilgrims. But instead of planting in a field, they're going to use a number line!

One at a time, have children press a number key on the top row of the computer keyboard and say the number as it appears on the screen. The student should then count out the corresponding number of kernels and put them in the small bag (which is similar, point out, to the bag of corn kernels a farmer might take into the field for planting). Repeat this activity until each number on the top row has been chosen.

When all the kernels are in the bag, let each child have a turn pressing another number on the computer and "planting" the right number of kernels from the bag onto the number line in the corresponding number's square.

CLASSROOM CAMPAIGN

November usually brings talk of elections to children's homes; this fall, candidates are already lining up for next year's Presidential Election. These creative computer activities help teach young children about counting *and* voting.

Preparation: Ask the children what person or character they would like to see as the next president of the United States. (You may be surprised at some of the answers they suggest!) Use a word processing package to record four or five nominations along the left side of the monitor.

Activity: Tell your students that they will hold their election on the computer. Explain that a computer counts their parents' votes when they go to the polls. Also point out that each child, like each parent, only gets one vote.

Each child should come to the computer and vote by moving the cursor (with the teacher's help) until it is next to the last vote for a candidate, and then pushing the space bar and then the star symbol. (The star symbol is made by pushing the shift and 8 keys.) As an alternative, print out ballots for a written vote and record the results on the computer.

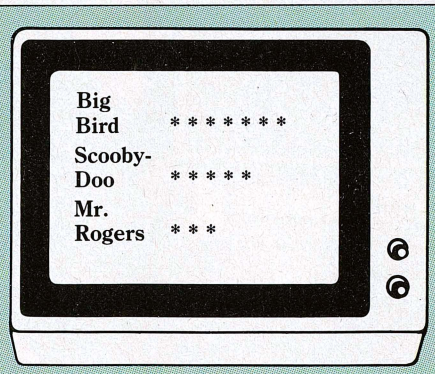
When the voting is complete, the children can count the votes with the help of the teacher.

When the vote has been counted, place a clear transparency sheet on the monitor and tape the corners to the edge of the screen. With an erasible transparency marker, draw a bar graph around the stars with the number of votes still visible (see illustration). The children will learn that a bar graph is another way to show a vote count, and that the longest bar shows the most votes.

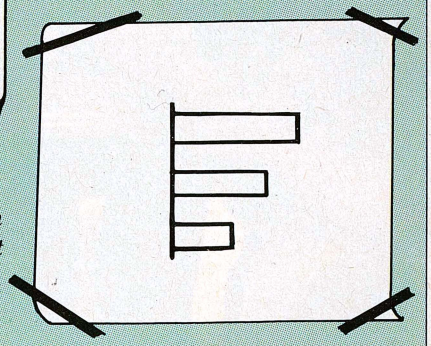
Your children may want to carry their election campaign to other classrooms. If this activity is chosen, show the students how the computer can add all the votes using a simple BASIC print statement. Put your computer in BASIC. Type in PRINT and the number of votes in one class + the number of votes from the other. Push the return key. (Example: PRINT 8 + 7. The computer will display 15.) ■

Trisha Ainsa is director of the Computer Literacy in Children, Title VII Program, Region XIX Education Service Center, El Paso, TX, and an associate professor at the University of Texas at El Paso.

COMPUTERIZED VOTING



Use a word processing program to turn your computer into a voting machine. Type in each candidate's name, and have each child "vote" by typing in a star symbol next to his or her choice.



When voting is complete, tape a clear transparency sheet to the monitor and trace around the stars for a quick bar graph.

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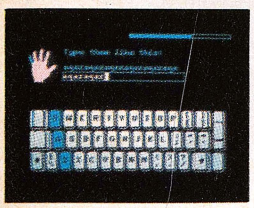

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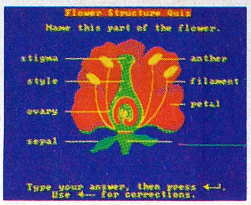

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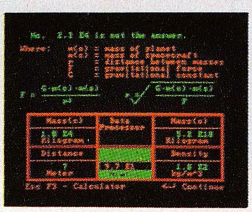

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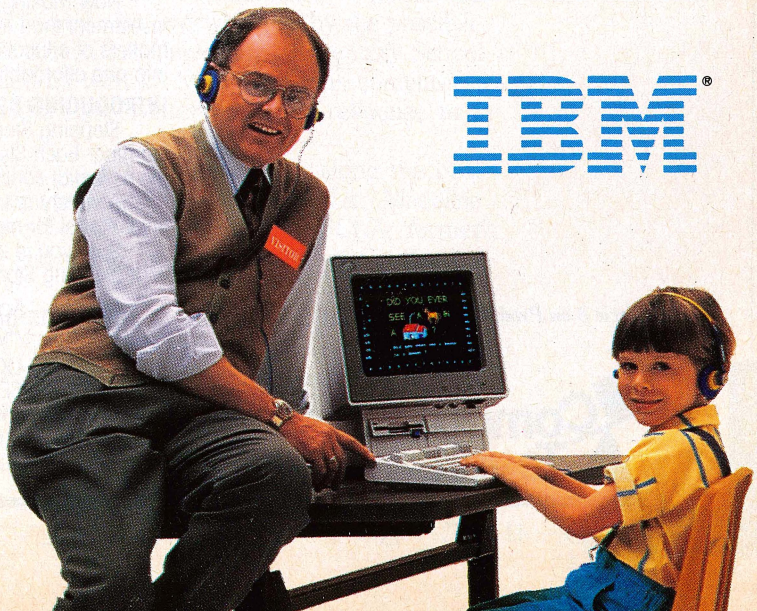

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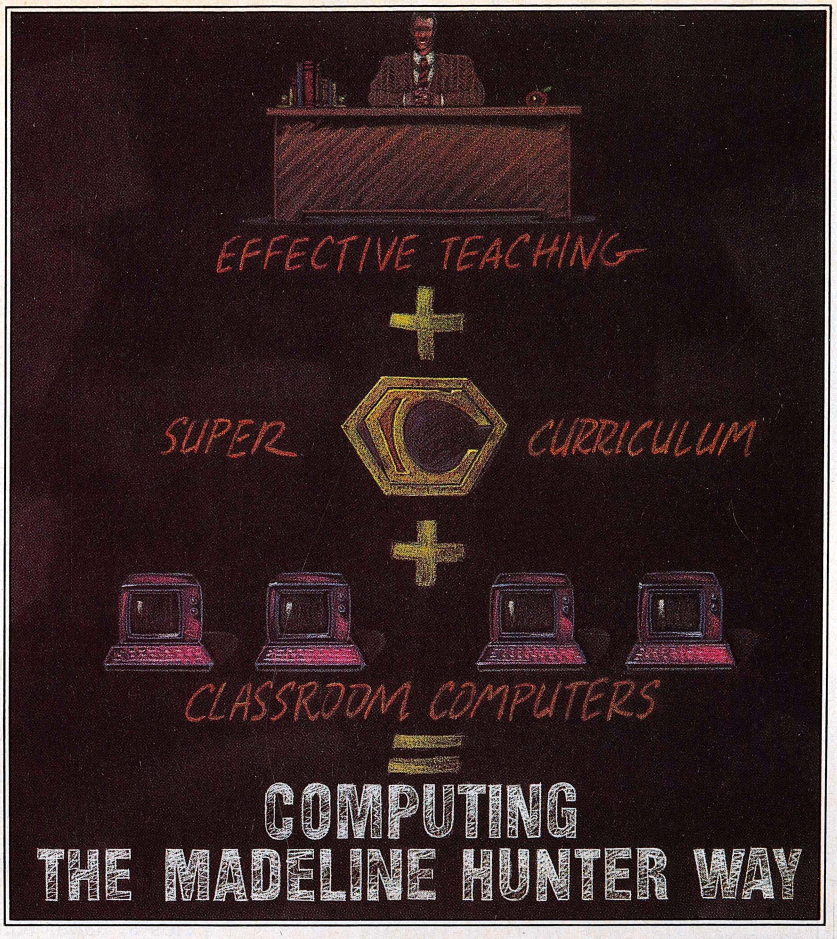


Greg Couch

Two protégés of the famed educational theorist put the Hunter model to work in their newly computerized classroom.

By Aileen Johnson and Jack Sutton

How would you feel if your principal announced that, next week, you'd have one computer for every two students? Chances are you'd be proud, excited—and a bit overwhelmed by the possibilities. That's how we at the UCLA University Elementary School felt when Apple Computer supplied us with 25 Macintosh Plus computers, three ImageWriter II printers, and a LaserWriter printer in response to a grant request.

After that initial reaction, though, we set our minds to making the best educational use of all this new equipment. Our work with Dr. Madeline Hunter (professor in the Graduate School of Education at UCLA, former principal of this laboratory school, and an international consultant on effective teaching) served as our guide.

For the past 25 years, Dr. Hunter and the faculty here at the University Elementary School have focused on the deliberate use of certain learning principles and their influence in effective teaching. What has emerged is a useful categorization of the decisions which all teachers make, plus identification of research-based ideas about learning which effective teachers consciously consider as they plan, teach, and evaluate (see "A Hunter Primer," on page 21).

(continued)

Computers come to a "Hunterized" classroom: At UCLA's Seeds University Elementary School, Aileen Johnson and Jack Sutton guide their students in writing science fiction and setting up a spreadsheet economy.

We decided to treat the "best use of computers" question no differently than any other question in educational decision making. Its answer, we suspected, would derive from the same kinds of teaching decisions and learning theories.

THE HUNTER DECISION MAKING MODEL

So what constitutes effective teaching? This model maintains that teaching is a constant stream of professional decisions in three categories: (1) *content,* or what to teach next; (2) *behavior of the learner,* or what the student will do to learn and show that learning has occurred; (3) *behavior of the teacher,* or what the teacher will do to increase the probability of learning.

The First Decision: Content

Content is the "what" to learn. The premise is that everybody can learn the next step beyond what she or he already knows. When we examine these learning steps and put them in sequence, we are doing a *task analysis* which identifies what students must accomplish to achieve a learning *objective.* The gifted, the "average," and the slow student proceed through the same learning steps; the gifted one might take two or three steps at a time, while less able students may need to spend more time on each step. As teachers, we need to *diagnose* the current level of understanding and next learning step for each student.

Teachers also need to consider the *complexity of thinking* required for each learning step. Students may begin with *knowledge* and *understanding* of a particular subject, then develop such progressively higher order thinking skills as *application, analysis, synthesis,* and *evaluation* (see box on page 31).

The Second Decision: Learner Behavior

Teachers focus on two student behaviors: *input* and *output.* First, teachers must consider what students will do to acquire knowledge, attitudes, or skills. This is known as input. Will the student read, listen, follow a computer program, watch a film, perform an activity, or some combination thereof? Learning styles vary, so good teachers use a variety of *modalities* to accommodate those varying styles.

Second, teachers must consider what students will do to demonstrate that they have learned. This is known as output. Will they write or tell about it, solve problems, or create a spreadsheet on the computer? Whatever it is, the output must make clear that students are ready to move on to the next learning step, or that they need more practice.

The Third Decision: Teacher Behavior

The third area focuses on what we as teachers will do to facilitate learning. Our aim should be to affect, through deliberate use of learning principles, our students' *motivation* to learn, the speed and amount *(rate and degree)* of their learning, their ability to *remember* what has been learned, and their ability to *transfer* the learning to new situations.

HOW IT WORKS IN PRACTICE

With these decision making categories in mind, our question about the "best use of computers" evolved into a new one: How can we synthesize the Hunter model, computers, and curriculum?

Since we knew that content had to be our first question, we started there. We decided to develop several areas of our curriculum around science fiction; namely, a literature-based reading/writing program, and a mathematics/social studies unit that creates a new society's economy. The computer would be an integral tool, with its uses ranging from word processing to creating spreadsheets.

Language Arts/Word Processing: Content Decisions

Now that we had some broad goals, we needed to make some more specific content decisions. We began with the language arts program. Science fiction fit our needs because students could read several short stories, compare them, and make generalizations about just what defines a piece of literature as science fiction. Thus, our unit (long term) objective was: *"After reading several science fiction stories, the learners will discuss attributes that define the stories as science fiction, and*

then create science fiction stories of their own using computer word processing skills."

Our task analysis included the following short term objectives, involving increasingly complex thinking skills:

1. Students will read selected science fiction stories and answer questions showing comprehension of the author's intent. We used an anthology of science fiction stories for young readers called *The Other Side of Tomorrow,* edited by Roger Elwood, plus other stories to accommodate lower and higher level readers such as *Matthew Looney* by Jerome Beatty, Jr., and *All Summer In a Day* by Ray Bradbury.

2. Guided by teacher discussion, students will identify these stories' common characteristics. Here's what our class came up with: Common science fiction settings include future worlds, planets other than earth, and other dimensions of time and space; those settings create changes in the ways society operates; those changes cause problems that have to be solved; in the solution of the problem often lies a statement about life as we know it today.

3. Students will read additional stories, looking for characteristics they've identified.

4. Each student will draft a story of his or her own on the computer.

5. Students will check their own drafts and each other's for the "characteristics of science fiction" they've established.

6. Students will revise, edit, and "publish" their stories.

Another task analysis was needed for teaching students how to use word processing. We identified essential knowledge and skills ranging from opening new documents to final editing of written material. We diagnosed our students to determine their varying levels of competence with word processing. We also taught keyboarding, which we found to be absolutely essential for — and manageable by — students from third grade up.

(continued)

A HUNTER PRIMER

Key concepts in the Madeline Hunter model for effective teaching.

TEACHING IS A CONSTANT STREAM OF PROFESSIONAL DECISIONS REGARDING:

(1) CONTENT, or what to teach next.

- The *objective* describes the desired result of the lesson or unit.
- The *task analysis* breaks the objective down into necessary learning steps.
- To determine the appropriate learning step for each student, you *diagnose* the existing level of understanding or skill.

(2) BEHAVIOR OF THE LEARNER, or what the student will do to learn and show that learning has occurred.

- *Input* is what the student will do to learn, from listening to a lecture to interacting with a computer program.
- *Output* is how the student demonstrates that he or she has learned. Output can be anything from answering questions on a test to performing a sonata.
- The many forms of input and output are known as *modalities.* Because learning styles vary, effective lessons often incorporate a variety of modalities.

(3) BEHAVIOR OF THE TEACHER, or what you can do to increase the probability of learning.

- You can affect students' *motivation* to learn, for example, by making sure that their work is rewarding.
- You can help students *remember* new information by linking it to what they already know, and you can help them *transfer* what they've learned to new situations by pointing out similar links.
- You can affect the *rate and degree* (speed and amount) of students' learning by using such techniques as:

  Modeling the new skill, information, or concept;
  Massing practice, or giving students many opportunities to try out a brand new skill or concept;
  Distributing practice, or offering intermittent opportunities to reinforce skills and concepts.

Check #	Date	Transaction Description	Withdrawal	Deposit	Balance
enter number	enter date	enter information	enter amount	enter amount	previous balance + deposit or - withdrawal
5009	2/12	photosynthesizer	Ω20703		Ω507,419
	2/13	Deposit (Explorers, Inc.)		Ω258,490	Ω763,909

Once they learned how a basic check register works, Aileen and Jack's students had "little difficulty" constructing a spreadsheet to handle electronic banking in their imaginary space-age economy.

Learner Behavior

Our next category of decisions focused on *how* students would learn to write science fiction stories on the computer. Several generalizations about learning guided our decision making.

First, on the input side, we knew that the more ways students obtained information, the more likely they were to learn it. With that in mind, we read stories to them, had them read independently, and showed films of science fiction stories. Our students wrote answers to questions intended to guide their thinking, and used their journals to record their own thoughts and ideas. They met in small groups to discuss stories and in a large group with the teacher as facilitator. At the same time, they were learning to use the computer. They saw demonstrations, read handouts on steps to follow, created their own list of computer guidelines, and practiced writing on the computer.

On the output side, to demonstrate that they had learned, students eventually wrote their own science fiction stories using the computer word processing program.

Teacher Behavior

Next we considered what we would do to facilitate learning. We knew that *modeling* a task speeds learning, and that the best models both show and tell how to work through a task. We modeled the process of analyzing a piece of literature for science fiction elements by telling students the thoughts that went through our heads as we read. For example, in reading aloud *All Summer in a Day*, we came upon a passage establishing that the characters did not live on earth. We paused and referred back to the characteristics of science fiction, and found that science fiction stories often take place on planets other than earth. So far, this story was matching the characteristics. We kept track of our thinking by writing key words on the board, to show students how to approach the task.

We have learned that *massing practice,* or giving students many experiences with a task in the initial stages of learning, shortens the time it takes to master a concept. We therefore asked our students to read and analyze many stories for science fiction characteristics. After they had learned the skill and were writing their own stories, we *distributed practice* by periodically having them read each others' stories and identify those same characteristics. This helped them remember the process.

We found that the computer greatly facilitated the use of practice theory, particularly in regard to writing. For years, teachers have read the final drafts of students' assignments and made mechanical corrections in areas such as punctuation, spelling, and usage. When we returned the papers, we were never sure our students ever read the corrections. We didn't make them rewrite their work because they'd already written several drafts; to keep pushing inevitably caused their motivation to plummet. Now we tell our students to go back and make these corrections on the computer. Because it's easy and fun to do, they do it, and in the process they get plenty of distributed practice in using language correctly. In addition, they feel so successful when they see a finished draft that's virtually "perfect," with no teacher marks, that their motivation soars.

Math and Social Studies/Spreadsheet: Content Decisions

In math, we developed a unit on money which invites students to apply what they've learned in whole number and decimal operations. We decided to combine this with an economics unit in which students would develop an economy for their own space age, science fiction-based colony. Each student would either sell goods or offer services in this economy, which would use only electronic money; the computers would serve as their banking machines. Thus, our long range objective was: *"Students will design a spreadsheet-based electronic banking system for the space age colony."*

Our task analysis identified the knowledge and increasingly complex skills which a student must possess to successfully perform this task:

Mathematics

- Add decimal numbers to the hundredth place;
- Explain the concept of depositing money;
- Subtract decimal numbers to the hundredth place;
- Explain the concept of withdrawing money;
- Explain concepts of balance, principal, transaction, and so on;
- Explain how a checkbook balance sheet works;
- Use a checkbook balance sheet.

Spreadsheets

- Describe the function of a spreadsheet;
- Explain the concepts of row, column, intersection, cell;
- Demonstrate ability to write formulas to add one cell to another, add columns/rows of numbers, subtract one cell from another;
- Design a spreadsheet for use as a checkbook;
- Use a spreadsheet as a checkbook balance sheet.

We then diagnosed our students'

(continued on page 31)

NOTES

HOW TO USE THIS MONTH'S POSTER AND WORKSHEETS

TEACHER'S GUIDE

November 16–22 is National Children's Book Week. This month's poster is an ideal resource for encouraging children to read, and to write their own stories. It provides facts about books and libraries, a list of good fiction books about computers, and a story about how authors use computers to write books. The poster also suggests computer-related activities on reading and writing. The flipside of the poster contains two blackline masters that reinforce and extend the poster material, plus a bonus BASIC program listing. For more information about Book Week, contact: The Children's Book Council, Inc., 67 Irving Place, New York, NY 10003; 212/254-2666.

USING THE POSTER

The poster is divided into seven main sections. Here is how to get the most from each.

From Papyrus to Paperbacks Start with this history of book development. Encourage kids to talk about the early forms of the book. What do students think it would be like to have only scrolls or clay tablets to read, rather than books as we know them today? *(It would be inconvenient to find information in the middle of the scroll; the clay tablet would be heavy to carry and would break if dropped.)* You might have students make their own scrolls using continuous computer paper, in addition to putting together the modern style books this section suggests.

Author, Author! Read aloud the article about how two authors use computers to write their books. Are there differences in the ways the two authors use the computer? *(Mary Francis Shura does everything from taking notes to polishing final drafts on the computer; Ann Martin writes her stories out in longhand first.)* Are there similarities? *(They both rely on the computer for fast, efficient revisions to their stories.)* Ask kids how they feel about writing at the computer. What do they like and dislike about it, compared to writing by hand?

Make a Bookmark This activity tells kids how to make their own bookmarks using the computer. Challenge them to add to their "good books" lists until the back of the bookmark is full!

Reader's Corner Kids will be more enthusiastic about reading when they're interested in the topic, and computers are sure to pique their interest. Have each student read one of the titles and write a book report to present to the rest of the class.

It's a Fact That. . . These facts about books and reading will help give kids an idea of the vast number of books available to them. Yet 23 million Americans still don't know how to read. Have a class discussion about the reasons people may not learn to read, and the disadvantages of not being able to read well.

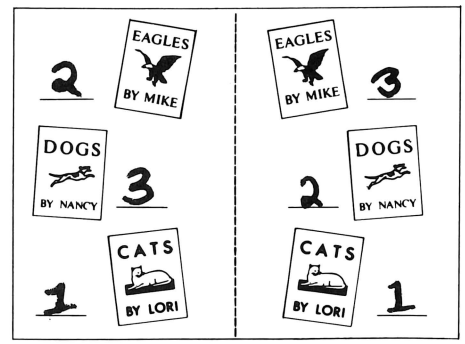
Favorite Characters Data Base This activity encourages kids to keep records of all the characters in their favorite books. The writing activity will help them think more closely about characterization, and will help them analyze how each character fits within each book. Kids can do all kinds of searches to come up with creative character lists, such as using all characters whose names begin with M, or all female villains.

Be an Author! The computer can coax creativity out of your most reluctant writers—especially after they've read how professional authors use their computers as writing tools. This activity suggests software programs and ideas that will help students get started on their own stories.

USING THE WORKSHEETS

This month's worksheets examine books and reading.

Book Markers — This worksheet introduces primary students to the information on book covers. At story time, hold up the book you're reading and point out its author and title. Tell students that these two pieces of information will help them find the book in a library or bookstore. Then have students complete the worksheet. For the first activity, students should draw a circle around *The Cat in the Hat.* They should draw an X through "By Dr. Seuss." The rest of the worksheet should look like this:



Every Picture Tells a Story — This worksheet will help even the most reluctant upper elementary story writer get started. Talk about the pictures; who are the people, where are they, and what are they doing? Discuss the parts of a story listed on the bottom of the page, then turn students loose to follow their imaginations!

Reasons to Read — This BASIC program for Apple computers gives your students 10 good reasons to read — and helps them gauge their reading speed at the same time! To use the program, just type it in and save it on a disk. Encourage students to see how quickly they can read the information; have them work in pairs to quiz each other on how much they remember about what they've read.

COPY

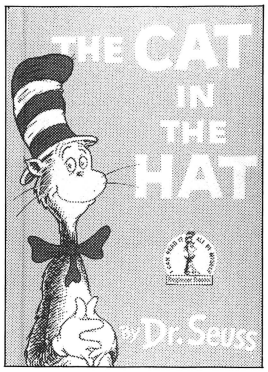
PRIMARY

WORKSHEET TO COPY AND USE WITH THIS MONTH'S POSTER

NAME: _____

BOOK MARKERS

DIRECTIONS: Look at the book at right. Draw a circle around the title. Put an X through the name of the person who wrote it (the author).



DIRECTIONS: Look at the names of the **authors** of these books. Number the books in alphabetical order by author.

_____

_____

_____

DIRECTIONS: Look at the **titles** of the books below. Number the books in alphabetical order by title.

_____

_____

_____

Copyright © 1957 by Dr. Seuss and Random House, Inc.

COPY

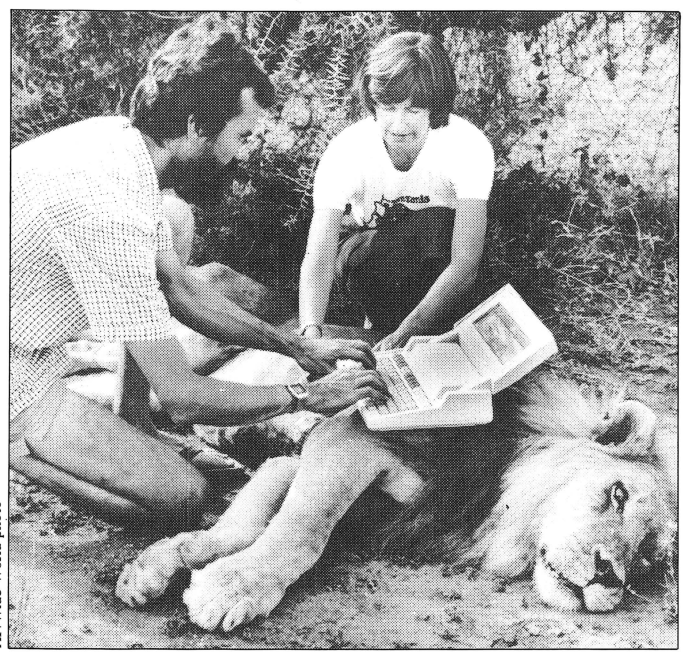
ADVANCED

WORKSHEET TO COPY AND USE WITH THIS MONTH'S POSTER

NAME: _____

EVERY PICTURE TELLS A STORY

DIRECTIONS: Look at the pictures on this page. Choose the one you like the best. Then go to your computer and boot up a word processing program (or get out a pencil and paper). Write a story about the picture. Use the information on the bottom of the page to help organize your story.



AP/Wide World photo

James Salzano

Good stories have three things in common: they all have a plot, characters, and a setting. The *plot* is the collection of events in a story. You can start your story by listing the events that will happen. *Characters* are the people (or animals, or aliens) involved in the story. What do the characters in your story look like? What do they like to talk about? The *setting* is where the story takes place. It includes the time and location. Where is your story taking place? After you've thought about all these things, you're ready to start writing!

_____

_____

_____

_____

_____

_____

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_____

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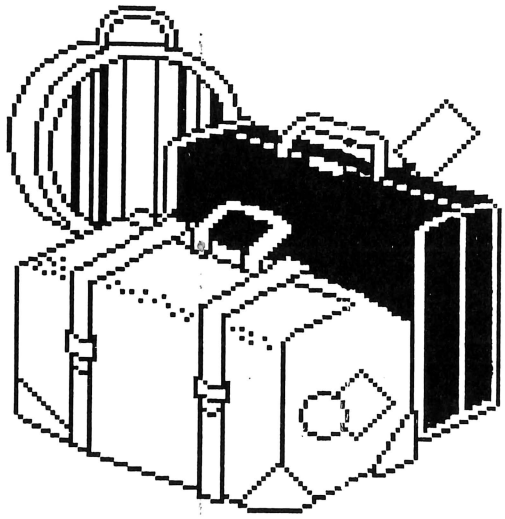
BONUS

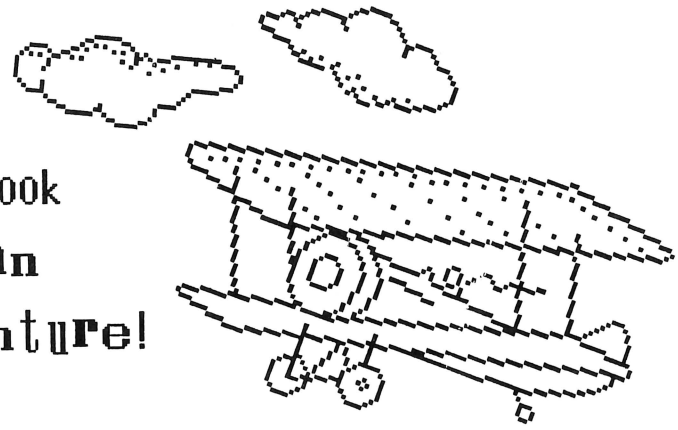
PROGRAM TO USE WITH THIS MONTH'S POSTER

REASONS TO READ

TEACHER DIRECTIONS: Type in (or have your advanced students type in) this BASIC program exactly as it appears. (It will run on Apple computers only.) Save it under the filename READ. To use, just type RUN READ.

```
5  REM  TEN REASONS TO READ
10  REM  COPYRIGHT SCHOLASTIC 1987
100  HOME
120  FOR D = 1 TO 1000: NEXT D
130  SPEED= 0
140  VTAB 8: HTAB 7: PRINT "TEN REASONS TO READ A LOT"
150  FOR D = 1 TO 800: NEXT D
160  VTAB 12: HTAB 4: PRINT "OF BOOKS, MAGAZINES, OR ANYTHING"
170  FOR D = 1 TO 2500: NEXT D
180  HOME
190  FOR D = 1 TO 1000: NEXT D
195  GOSUB 2000
197  HOME
198  FOR D = 1 TO 800: NEXT D
200  VTAB 2: PRINT "1. READING IS FUN."
210  FOR D = 1 TO S: NEXT D
220  VTAB 4: PRINT "2. THE MORE YOU READ, THE MORE YOU KNOW"
230  FOR D = 1 TO 200: NEXT D
240  VTAB 6: PRINT "ABOUT THINGS."
250  FOR D = 1 TO S: NEXT D
260  VTAB 8: PRINT "3. YOU CAN MAKE FRIENDS WITH THE PEOPLE"
270  FOR D = 1 TO 200: NEXT D
280  VTAB 10: PRINT "IN BOOKS."
290  FOR D = 1 TO S: NEXT D
300  VTAB 12: PRINT "4. READING MAKES YOU A BETTER SPELLER."
310  FOR D = 1 TO S: NEXT D
320  VTAB 14: PRINT "5. BOOKS ARE A NEAT THING TO TALK ABOUT"
330  FOR D = 1 TO 200: NEXT D
340  VTAB 16: PRINT "WITH FRIENDS."
350  FOR D = 1 TO S: NEXT D
360  VTAB 18: PRINT "6. READING TEACHES YOU NEW WORDS."
370  FOR D = 1 TO S: NEXT D
380  VTAB 20: PRINT "7. THE MORE STORIES YOU READ, THE MORE"
390  FOR D = 1 TO 200: NEXT D
400  VTAB 22: PRINT "IDEAS YOU WILL HAVE FOR YOUR OWN STORIES"
410  FOR D = 1 TO 200: NEXT D
420  PRINT "."
430  FOR D = 1 TO S: NEXT D
440  PRINT : PRINT "8. BY READING A BOOK, YOU CAN GO ON AN"
450  FOR D = 1 TO 400: NEXT D
460  PRINT : PRINT "EXCITING ADVENTURE WITHOUT EVEN LEAVING"
470  FOR D = 1 TO 400: NEXT D
480  PRINT : PRINT "YOUR BEDROOM !"
490  FOR D = 1 TO S: NEXT D
500  PRINT : PRINT "9. READING IS A HOBBY YOU CAN TAKE"
510  FOR D = 1 TO 350: NEXT D
520  PRINT : PRINT "ANYWHERE.  JUST CARRY YOUR FAVORITE BOOK"
530  FOR D = 1 TO 350: NEXT D
540  PRINT : PRINT "WITH YOU WHEREVER YOU GO."
550  FOR D = 1 TO S: NEXT D
560  PRINT : PRINT "10. YOU CAN LEARN WHATEVER YOU WANT TO"
570  FOR D = 1 TO 200: NEXT D
580  PRINT : PRINT "LEARN FROM BOOKS."
590  FOR D = 1 TO 800: NEXT D
600  PRINT : PRINT "FOR EXAMPLE, YOU COULD LEARN ABOUT"
610  FOR D = 1 TO 600: NEXT D
620  PRINT : PRINT "FISHING, OR CAMPING, OR AIRPLANES, OR"
630  FOR D = 1 TO 400: NEXT D
640  PRINT : PRINT "SEWING, OR VOLCANOES, OR WHALES, OR"
650  FOR D = 1 TO 400: NEXT D
660  PRINT : PRINT "COOKING, OR EVEN ..... . COMPUTERS."
670  FOR D = 1 TO 3000: NEXT D
680  PRINT : PRINT "  * * * * * * * * * * * * * * * * * * * * "
690  FOR D = 1 TO 400: NEXT D
700  PRINT : PRINT "       WRITTEN BY PHIL SHAPIRO"
710  FOR D = 1 TO 800: NEXT D
720  PRINT : PRINT : PRINT "WOULD YOU LIKE TO READ THIS AGAIN ?"
730  FOR D = 1 TO 600: NEXT D
740  PRINT : PRINT "TYPE EITHER 'YES' OR 'NO'."
750  FOR D = 1 TO 400: NEXT D
760  PRINT : PRINT "AND THEN PRESS 'RETURN'."
770  INPUT AN$
780  IF AN$ = "YES" THEN  GOTO  00
790  IF AN$ = "'YES'" THEN  GOTO 100
800  IF AN$ = "NO" THEN  HOME : END
810  IF AN$ = "'NO'" THEN  HOME : END
820  GOTO 730
830  END
2000  VTAB 8: HTAB 5: PRINT "PLEASE CHOOSE A READING SPEED."
2010  FOR D = 1 TO 600: NEXT D
2020  VTAB 12: HTAB 6: PRINT "TYPE IN EITHER 1,2,3, OR 4."
2030  FOR D = 1 TO 500: NEXT D
2040  VTAB 16: HTAB 20: PRINT "1. SLOW"
2050  FOR D = 1 TO 200: NEXT D
2060  VTAB 18: HTAB 20: PRINT "2. MEDIUM"
2070  FOR D = 1 TO 200: NEXT D
2080  VTAB 20: HTAB 20: PRINT "3. FAST"
2090  FOR D = 1 TO 200: NEXT D
2100  VTAB 22: HTAB 20: PRINT "4. SUPER-FAST"
2110  GET SP
2120  IF SP = 1 THEN  SPEED= 0:S = 4000: RETURN
2130  IF SP = 2 THEN  SPEED= 10:S = 2500: RETURN
2140  IF SP = 3 THEN  SPEED= 30:S = 1500: RETURN
2150  IF SP = 4 THEN  SPEED= 80:S = 500: RETURN
2160  GOTO 2110
```





Program listing by Phil Shapiro

learning to determine what they already knew and what we had to teach. Our diagnosis revealed that most students had already learned the necessary computation skills, but needed to be taught the concepts of deposit, withdrawal, balance, principle, the operation of the checkbook balance sheet, and virtually everything about spreadsheets.

Learner Behavior

On the input side, as in the previous example, we provided students with a number of ways to learn, including: watching a demonstration of how to use a checkbook balance sheet; reading directions and rewriting them in their own words; recalling the steps from memory; and explaining how the balance sheet works.

Checkbook balance sheet use was taught so students could not only use a balance sheet, but explain what each column was for and what arithmetic operations were used in each column so they would be able to design a system using a spreadsheet. Students then performed the culminating task (output) to demonstrate they had learned how to design and use the spreadsheet system.

Teacher Behavior

First, we recognized that if we could build in *meaning* (relating the new learning to previous student experiences), we could greatly increase the *rate and degree* of learning and the probability that the learning would be *remembered.* In this case we built on the fact that all of our students had previous experience with money, knew about checkbooks, and realized it was important to know how much money one has in the bank.

Second, we recognized that if the skills we taught were to *transfer* appropriately to future student performance, we needed to:

- Make our practice situations as similar to future use as possible;
- Provide a number of quality examples throughout instruction;
- Design situations so students would learn to discriminate when the concepts presented were applicable, and when they were not.

The checkbook balance sheet exercise was selected because of the potential transfer to the spreadsheet. The spreadsheet system is virtually identical to the checkbook balance sheet: in both systems, the user has to enter the check number, date, description of the transaction, and the amount deposited or withdrawn. The only difference is that in the checkbook system, you have to add or subtract to figure out the balance; in the spreadsheet system, the computer automatically calculates the balance.

Once the students recognized the similarity between the checkbook and spreadsheet systems, they were able to construct the spreadsheet with little difficulty. All they needed to learn was how to write the formulas. *Quality learning* of the checkbook system and a perceived *similarity* of the checkbook and spreadsheet systems resulted in such *positive transfer* that the only new learning for students was how to write the necessary formulas. The diagram on page 22 illustrates what the spreadsheet balance sheet system looked like and what the formulas did.

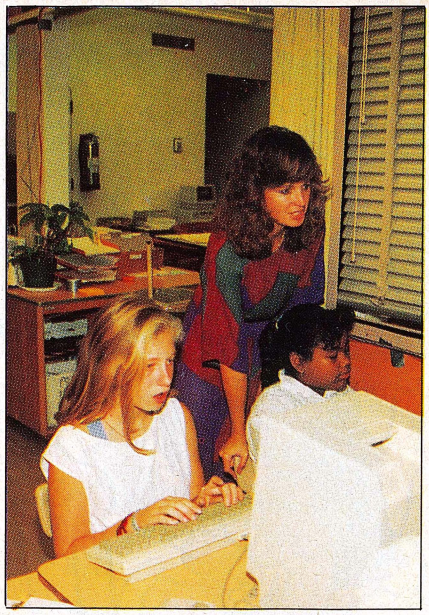
In the culmination of this unit, our students put their spreadsheet system to work in a simulation of the space age economy.

LOOKING BACK. . .AND AHEAD!

Our new Macs have challenged us to make the most of what we know about curriculum, teaching, and learning. The Hunter decision making model allowed us to be creative in instructional planning, while maintaining the psychological rigor needed to optimize student learning. It gave us a framework for effectively merging curriculum and computers.

We're *ready* for news from our principal this time. We'd like to hear that *every* student in our classroom will have his or her own computer. After all, what's wrong with dreaming of the stars when you've already learned how to fly? ■

Aileen Johnson and ***Jack Sutton*** teach at Seeds University Elementary School, the laboratory school of the University of California/Los Angeles' Graduate School of Education. They would like to thank their former principal, Dr. Madeline Hunter, for helping them prepare this article for publication.



Guided practice with the computer is "easy and fun," Aileen has learned from her students and their Macs.

SCALE OF COMPLEX THINKING SKILLS

1. **Knowledge** of basic concepts, generalizations, and skills.
2. **Comprehension** of those concepts, generalizations, and skills.
3. **Application** of the concepts, generalizations, and skills appropriately in new situations.
4. **Analysis** of situations or categories to compare significant relationships.
5. **Synthesis** of new solutions in response to new problems.
6. **Evaluation** of various solutions to determine the most appropriate course(s) of action.

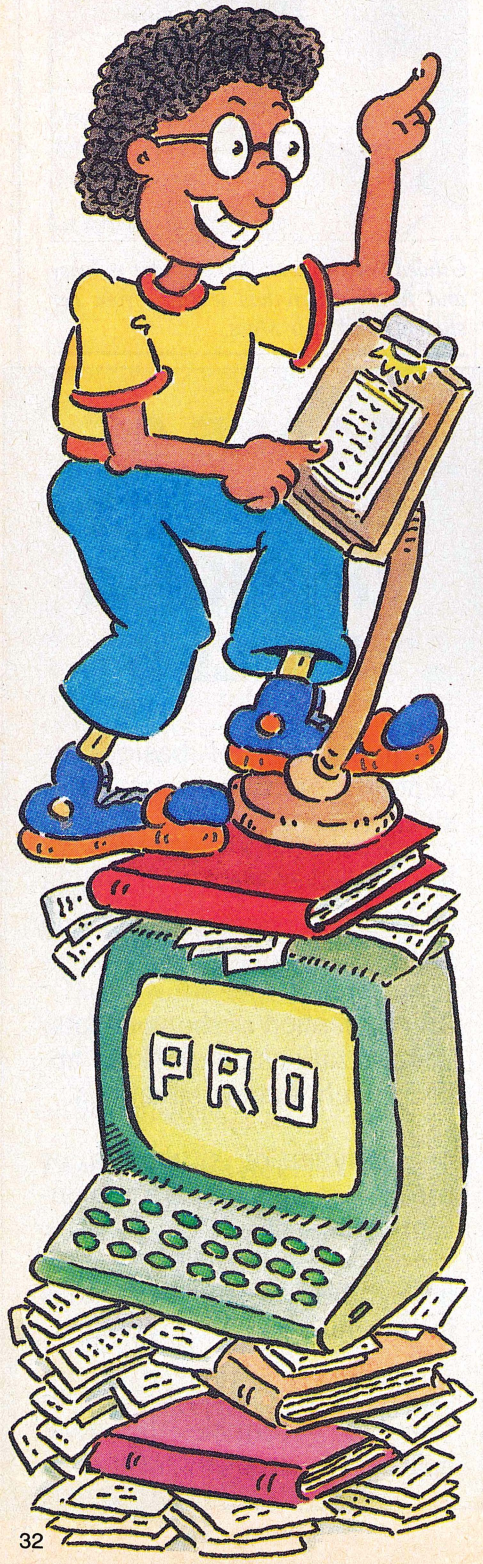
CURRICULUM CONNECTIONS

LANGUAGE ARTS
**Using pre-writing techniques*
**Writing persuasively*
**Expressing oneself orally*

CRITICAL THINKING
**Developing logical arguments*
**Judging credibility of evidence*

The GREAT

WORD PROCESSING, "IDEA PRO PROCESS MAKE A GREAT REBUT



There's nothing like a debate to heat up your classroom when the temperature drops outside. Debating warms up your students' skills in gathering and organizing information, writing persuasively, and expressing themselves orally. And *this* debate project will keep your classroom computer going full steam as well, from the early brainstorming stages through "publication" of your students' written debates.

Although this project suggests debate topics of general interest, you may choose to focus on a particular curriculum area, such as history or environmental science. Just keep in mind that younger children can best debate issues directly related to their own interests and immediate environment. Older students may be better able to tackle issues of broad social or political relevance.

WHAT IS A DEBATE?

Explain to your students that debating is a time-honored way of airing differences of opinion over issues of local, national, and even worldwide importance. Throughout American history, leaders have shaped public opinion with debates on such issues as independence from Britain, establishment of the Constitution, and abolition of slavery. More recently, televised debates between candidates have become an expected part of presidential election campaigns.

Explain that a debate combines some of the formality of speechmaking with the give-and-take of a discussion. In a structured debate, the issues are carefully worded, opposing viewpoints on the issues are clearly defined, and participants are given ample opportunity to prepare their arguments ahead of time. But the opponents in a debate must also respond to each others' arguments on the spot, and the "winning" side is the one which can build its case while weakening its opponents'.

Over the next several weeks, tell students, they will be working in teams, researching topics and writing speeches for a series of debates to be presented orally to the class, which will then vote for the winners. The final results will be bound, along with the text of the speeches, into a "book of debates" for each student.

MATERIALS NEEDED

To complete your classroom debates, you will need a word processing program and, if available, an "idea processor" (see box on page 36). You will also need access to a printer and a photocopier.

PREPARATION

If you will be using only a word processing program (and not an idea processor as well), create a word processing file called IDEAS. Into this file, type a list of general questions that will help students build their arguments. Such questions might include:

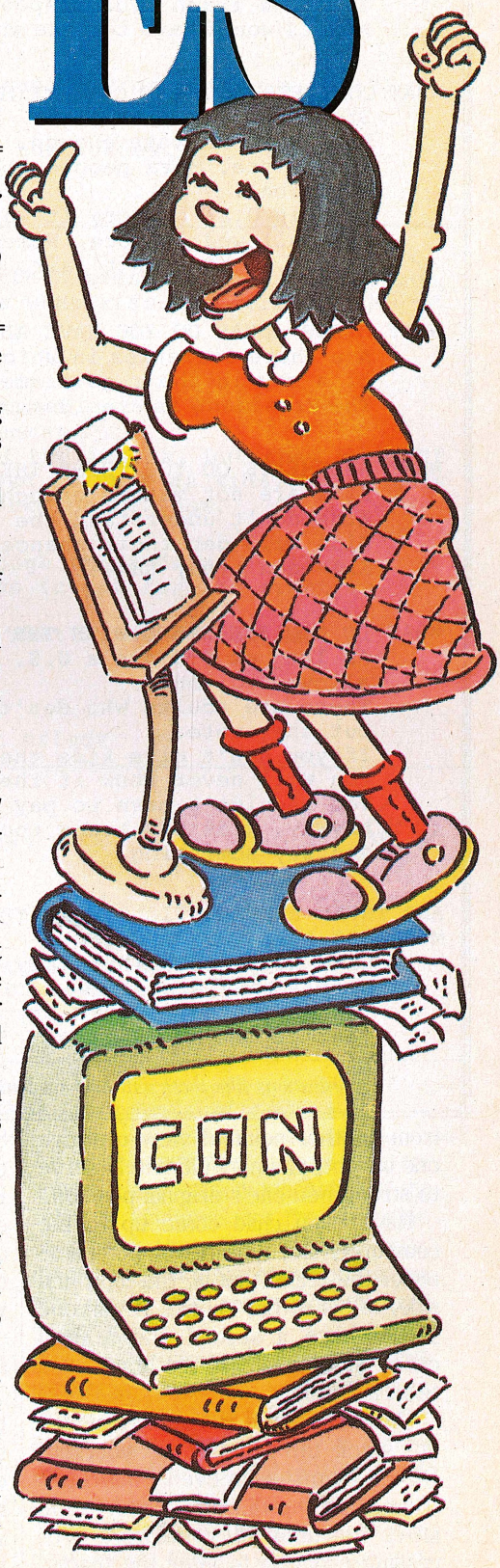
- What is your team trying to prove?
- What makes you feel that this is so?
- Are there any concrete examples you can give showing that this is true?
- What other ideas do you have about this topic?

CLASS PROJECT

By Beth Smith

DEBATES

CESSING," AND THE DEBATING TAL TO EARLY WINTER BLUES!



Slug Signorino

- What arguments do you think the other team will make?
- What do you see wrong with the other team's arguments?
- Do you see any possible resolutions to the conflict between the two sides?

If you will be using an idea processing program, now is the time to explore the ways your particular software package will work best in this project. If you use *First Draft* (Scholastic), for example, check out the "Persuasion" file on the activities disk. This file contains prompts that guide your students in generating argument ideas. If you use *The Write Connection* (Broderbund), students can use either the "Persuasive" file from the Paragraph 1 disk, or the "Editorial" file from the News Writing disk.

If your idea processing program does not contain an appropriate brainstorming template, you might use the questions in the previous section to prepare one of your own. If you use *Thinking Cap* (Scott, Foresman & Co.), for example, insert each of the above questions as the first line in a block of ideas; later, your students will list their responses under the appropriate subsections and move the blocks around as they work to reorganize their thoughts.

DETERMINING THE ISSUES

To help students decide on their debate issues, write the following five sentences on the board:

- Resolved, that children should be allowed to stay up as late as they like at night.
- Resolved, that the school library should charge a fine for overdue books.
- Resolved, that Saturday morning cartoon programs should count as homework.
- Resolved, that children should work for their allowance.
- Resolved, that students should be allowed to vote for the President of the United States.

Read all five statements aloud, and ask students to identify similarities among them. (*All five topics begin with the words "Resolved, that. . .," and all are stated in the affirmative. The topics do not pose "true or false" questions, but instead are concerned with* policy, *or the way that something is done.)*

Have students suggest other topics, using the same kind of wording. Then help your future orators select three or more topics to debate. The number of topics will depend on your class size: each topic will be handled by a pro and con team of equal size, with three to five students on each team — a total of six to 10 students per topic.

PICKING THE TEAMS

When the topics have been selected, set up a new word processing file listing them. Underneath each proposal, make headings for a list of *pro* and *con* team members.

Explain that the *pro* team debates *for* the proposal as it is stated; the *con* team debates *against* the debate proposal. Encourage students to consider taking a position other than that which they actually believe; you might explain that looking at an issue

(continued)

BRAINSTORMING

```
WHAT IS YOUR TEAM TRYING TO PROVE?
     That students should be allowed to vote for President of
     the United States.

WHY DO YOU FEEL THAT THIS IS SO?
     The President's decisions affect everybody, including
     kids.
     It would teach kids responsibility.
     Adults would have to take what kids say more seriously.

WHAT CONCRETE EXAMPLES CAN YOU GIVE TO SUPPORT YOUR ARGUMENT?
     Student government.
     People do not vote enough. If kids had the chance, they
     would vote. More people would take part in national
     elections.
     Back in U.S. history it was just the landholders who
     were allowed to vote. Women weren't allowed to vote
     either. That wasn't fair.

WHAT OTHER IDEAS DO YOU HAVE ABOUT THIS TOPIC?
     Are there societies in which kids do vote, or have more
     of a say in their government?
     The President is President of everybody, including kids.

WHAT ARGUMENTS DO YOU THINK THE OTHER TEAM WILL MAKE?
     Kids are not mature enough to vote.
     Kids don't understand the issues well enough to vote.
     Kids will get their chance when they grow up.
     Kids don't pay taxes.

WHAT DO YOU SEE WRONG WITH THE OTHER TEAM'S ARGUMENTS?
     As long as you are a U.S. citizen, you should be
     allowed to vote.
     There are adults who don't understand all the issues,
     but they vote.
     If you don't give kids the chance while they're kids,
     you will never know if they can handle it.
     You shouldn't have to pay taxes in order to vote.
     Anyway, kids pay taxes too, when they go to the store
     and buy something.

ARE THERE ANY SOLUTIONS THAT YOUR TEAM AND THE OTHER TEAM
MIGHT BE ABLE TO AGREE UPON?
     Have kids prove that they understand the issues
     before they are allowed to vote.
     The government should try letting kids vote for one
     year to see if it works.
```

Questions like these will help students fully explore their debate topics.

from another point of view can give one insight, and may ultimately serve to strengthen one's original position.

Have each child come up to the computer, and type his or her name under the team (that is, the topic and side) of his or her choice. (Everyone should have a second and a third choice in mind in case the first choice team is full.)

Once all your students have signed up, scroll through the file yourself. Do the teams seem evenly matched? If not, use the DELETE, INSERT, and MOVE functions of your word processing program to alter the teams. Save the final version of this file on a disk, under the file name TEAMS. Print out a copy and post it on a classroom bulletin board for your students to see which issues they will be debating and who their teammates will be.

DISSECTING A DEBATE

Before students go to work with their team members, explain the structure of the upcoming debates. In each debate, the pro team will first have seven minutes to present its written speech. (This time limit and those which follow are only suggestions — you and your class should determine your own.) Then the con team will present its speech, for up to seven minutes. As each team speaks, members of the other team should listen carefully, and take notes on any points that they disagree with. After both teams have read their speeches, the teams will have three minutes to prepare their rebuttals, and five minutes each to present them. After both rebuttals, the class as a whole will judge which team presented the stronger case.

Since it's likely that your students have never written a speech, take a few minutes to discuss format. A persuasive speech — like a persuasive essay — is composed of three basic parts: the *introduction*, in which main ideas are stated; the *body*, in which factual *evidence* is presented; and the *conclusion*, in which the arguments are summed up.

Take time now also to explain the form and purpose of a rebuttal. In a rebuttal, debaters should focus critical attention on the arguments the other team presented and the evidence used to support those arguments. Do the arguments show logical flaws, such as faulty inductive or deductive reasoning? Can the credibility of the evidence be questioned? A good rebuttal, like a good persuasive speech, requires the direct application of critical thinking skills.

HOLD A SAMPLE BRAINSTORMING SESSION

Choose a topic that your students will *not* be debating. Then load your IDEAS word processing file or your idea processing program into the computer, and have students gather around the monitor to brainstorm argument ideas for one side of the sample debate topic.

As each question appears on the the screen, type in all of the childrens' responses — no matter how irrelevant they may seem. Spend perhaps five to ten minutes on each question. When the stream of responses runs dry, wait an extra 20 seconds or so, giving students more time to think. Then move on to the next question. If your students draw a blank on a question, go on to the next one, then come back to unanswered questions at the end of the brainstorming session.

REGROUPING THE IDEAS

Your students will probably be sur-

prised at the number of ideas they have managed to brainstorm. The next step is to model grouping and regrouping those ideas to find the best and most logical order for speechwriting.

As the children reread the brainstorming notes, point out that the ideas are already divided into sections — each one a response to a question or prompt. How else might they be arranged? (For a sample outline, see page 34; for sample ways of grouping the ideas, see this page.) Using the MOVE, INSERT and DELETE functions of your word processor or idea processor, help your students find a number of different ways to regroup the ideas. At the same time, encourage them to edit: Are there any ideas that are repeated? Is there a better way to rephrase some of the ideas? Are new ideas sparked by rereading the notes?

Save each newly grouped list under a different file name, and make a printout of each. Call on several students to select the grouping they like best, and have them explain their choices to the class.

When your students understand the brainstorming/regrouping process, have them break up into teams and begin working with their own topics. Make sure each team has at least one uninterrupted half-hour session at the computer to brainstorm and reorganize its ideas.

THREE WAYS TO REGROUP

#1

```
INTRODUCTION
  Students should be allowed to vote.
  Decisions of President affect kids, too. (Need proof!)
  Teaches kids responsibility.
  Adults would have to take what kids say seriously.(Proof!)

EVIDENCE
  Student government.
  Other societies?
  Taxes.
  Kids do understand the issues. (Proof: take a poll?)

CONCLUSION
  Not all adults understand the issues, but they vote.
  Kids are citizens, too.
  Possible solutions.
```

#2

```
KIDS' RIGHTS
  Decisions of President affect kids, too.
  Adults would have to take what kids say seriously.
  Other societies?

A LEARNING EXPERIENCE
  Teaches kids responsibility.
  Teaches kids about government.
  Example of student government.
  Not all adults understand the issues, but they vote. If
  the adults had been allowed to vote as kids, maybe they
  would understand the issues better now.

U.S. HISTORY
  People are not voting enough these days.
  Examples of minorities who fought for the right to
  vote-- women and blacks.
  Paying taxes and voting--what's the connection?

SOLUTIONS
  A test.
  Trying it once.
  Has anything similar been tried?
```

#3

```
MARY
  Introduction
  Interview with a politician
  The vote in U.S. history
CONNIE
  As a learning experience
  Student government
  Paying taxes and voting--connection
JOHN
  Other societies
  Kids' rights
  Conclusion & solutions
```

Ideas from the brainstorming file (opposite) can be organized in many ways.

RESEARCHING THE TOPICS

After each team has regrouped its ideas and selected the grouping that "works" best, team members should decide among themselves who will research and write about each of the different arguments. (Each team will also need to decide whether to write its introduction and conclusion as a group, or appoint one member to do each.)

In researching their topics, students should consult books, newspapers, and other reference sources in your classroom or school library. If the topic is one of local importance, students may also wish to find an "expert" in your area who would consent to an interview. For example, if the topic were "Resolved, that the school library should charge a fine for overdue books," the school librarian or principal might be the best research source either team could ask for. In this case, teams should decide in advance what questions to ask and who will conduct the interview.

WRITING THE SPEECHES

After completing his or her assigned research task and writing a rough draft of the particular argument, have each student on a team use a word processing program to enter what he or she has written into a team file. The team members can then work together as a group, with printouts and at the computer, to prepare a final draft of the team speech. Does the opening paragraph state the debate team's main ideas? Are the arguments soundly reasoned? Have students included all the relevant evidence that they have researched? How well will the arguments and evidence stand up against any points that the opposing team might make?

When students are happy with their text, have them make a printout of the final speech for each member of the debate team, as well as a copy that you will use to add to "The Book of Debates" (see below).

On his or her printout, each student should make a note of the section that he or she is going to read

(continued)

aloud during the debate. This would be a good time, as well, to decide how the team will handle rebuttals. Will one child voice a rebuttal for his or her entire group, or will each student in the group be given a chance to speak? The teams may want to practice their speeches and take turns thinking up, discussing, and presenting rebuttal arguments.

LET'S DEBATE!

While your students are gathering their research and preparing their speeches, schedule a date or series of dates for the great debates. You may even want to stage the debates in the school auditorium, and invite other classes to come and help your students act as judges.

Wherever you hold the debates, provide ample desk space for each of the two teams, with a podium or extra desk in between for the speaker.

When debate day arrives, take a few minutes to discuss ground rules with the whole class. For example, you'll want to emphasize that debates are won with persuasive words and strong evidence — not raised voices and name calling. Remind students of their time limits — for example, seven minutes for speeches, five for rebuttals, and two to three minutes in between for team discussion. Then have one member of each "pro" team draw a straw to determine whose topic will be first — and let the debates begin!

After the last rebuttals of each debate, have the debaters leave the room. The remaining students will now vote for one of the two teams, based on the speeches that they heard. Emphasize to students that, in order to vote for a particular team, they do not have to agree with that team's arguments: they only have to feel that the team presented a stronger case than its opponent. Make a note of which team — pro or con — "won" each debate, so that you can record the information in your "Book of Debates."

BINDING THE BOOK OF DEBATES

After the debates have concluded, load into the computer the TEAMS file that you created at the beginning of this unit. Below the list of names for each topic that was debated, write the line "And the winner was. . ." and type in either "pro" or "con" — whichever your students felt presented a stronger argument. Add space so that each topic and related team listing will print out on a separate page. Then group each of these cover pages with the printout of the speeches that those two teams presented. Arrange the sets of printouts in the order the debates actually took place. Then make a photocopy of the entire document for each student. Staple the pages together and have each child design his or her own cover.

Before they take their debate books home, have your students use them as a reference in a whole class discussion on such questions as:

- Did students notice any common factors in the winning teams' arguments that made their speeches stronger?
- What might the other teams have done to strengthen their arguments?
- If they were to restage the debates, what might students do differently? What might they keep the same?

As an extension activity, assign students to read the texts of some famous debates in American history (such as the Abraham Lincoln/Stephen A. Douglas debate over slavery in the new American territories). And be sure to remind them to watch any candidates' debates on television during the upcoming 1988 Election Year! ■

Beth Smith teaches sixth grade at the Fifth Street School in Bangor, Maine.

IDEA PROCESSING PROGRAMS

An idea processor is a pre-writing tool that helps students generate and organize thoughts. These programs vary somewhat.

Proteus and *Proteus, Jr.*, for example, are pre-writing tools that help students examine a topic thoroughly. In order to organize his or her thoughts, however, a user must first convert the "session" to a word processing program, where ideas can be moved about the page.

Thinking Cap, in comparison, offers very little help in generating ideas. It does, however, offer many special functions that help students to effectively organize and re-organize their thoughts.

First Draft and *The Write Connection* are two programs that attempt to address both the process of generating ideas, *and* the organization process.

Product information on all five programs is as follows.

First Draft. For Apple II family, IBM PC/PCjr, Tandy 1000, and compatible computers. Price: school edition $87.45, home edition $69.95. Lab packs and educator discounts available. Contact: Inquiry Department, Scholastic, Inc., P.O. Box 7501, 2931 East McCarty St., Jefferson City, MO 65102; 800/325-6149.
(Circle 100 on Product Info Card)

Proteus: The Idea Processor. For Apple II series, Commodore 64, Tandy, TRS 80, IBM PC or PCjr (with 256K) and compatibles. Price: $59.95; one building site license, $99.95. Contact: RDA/Mind Builders, P.O. Box 848, Stony Brook, NY 11790; 800/654-8715; 516 928-5700 (in NY).
(Circle 101 on Product Info Card)

Proteus Jr.: The Idea Processor. For Apple II series and Commodore 64. Price: $59.95; one building site license, $99.95. Contact: RDA/Mind Builders, P.O. Box 848, Stony Brook, NY 11790; 800/654-8715; 516 928-5700 (in NY).
(Circle 102 on Product Info Card)

Thinking Cap. For Commodore 64/128. Price: $34.95. Thirty-day preview. Contact: Broderbund Software, 17 Paul Dr., San Rafael, CA 94903-2101; 415/492-3500.
(Circle 103 on Product Info Card)

The Write Connection. For Apple II series. Price: $149.95. Educator discounts available. Contact: Scott, Foresman & Co., 1900 E. Lake Ave., Glenview, IL 60025; 312/273-5900.
(Circle 104 on Product Info Card)

ELECTRONIC LESSON PLANS

COMPUTING IN THE CONTENT AREAS

THANKSGIVING DIARY

Curriculum Objective:
Practicing punctuation
Computer Skills:
Editing with a word processor

Do your students realize that some of the Pilgrims who came over on the *Mayflower* were kids their age? This word processing activity will introduce them to the life of the Pilgrim child, and will help them practice punctuation and editing skills.

Preparation: Using a word processing program, type in the ELIZABETH'S DIARY file exactly as it appears, and save it on a blank disk.

Activity: Students should copy ELIZABETH'S DIARY onto a disk of their own so they can make the necessary changes as they edit.

ELIZABETH'S DIARY

There were many Pilgrim children in the Plymouth Colony in the early 1600s. There was not much time for play or education. Most of their time was spent working and helping their parents. A teenager named Elizabeth could write and kept a diary, but she was not very good at using capital letters and punctuation marks. She needs your help. Read her diary entries and insert capital letters and end punctuation for her where they are needed. There are 30 mistakes. See if you can find them all!

July 12, 1621
Dear Diary,

Today a terrible thing happened a young boy named john wandered off into the woods he was all alone! when it was discovered that he was gone, the men formed a search party to look for him they searched until dark but found nothing poor john!

Signed, Elizabeth

July 17, 1621
Dear Diary,

A wondrous thing happened john was found at last he was safe with the Nauset Indians he had wandered into the woods living on only wintergreen and partridge berries until they discovered him when our men finally located him, the Nausets waded out to greet their boats there were more than a hundred Indians the chief carried john piggyback so he wouldn't get wet the indians had given him strings of shells or wampum as gifts i'm glad john is safe again

Signed, Elizabeth

Bulletin Board: Under the heading, "Pilgrim Children," center a picture of the *Mayflower*, and place around it some of these facts about the Pilgrim children:

- Of the 99 passengers who landed at Plymouth, 30 of them were children.
- Two children were born on the *Mayflower*: Oceanus Hopkins and Peregrin White. Peregrin lived to be 83; Oceanus died before he turned two.
- Some children were servants who had to work for seven years for the families who brought them to the New World.
- Pilgrim children had names like John, Richard, Elizabeth, and Ellen. But there were also some named for beliefs such as Humility, Love, and Patience.

Beth Smith
Fifth Street School
Bangor, ME

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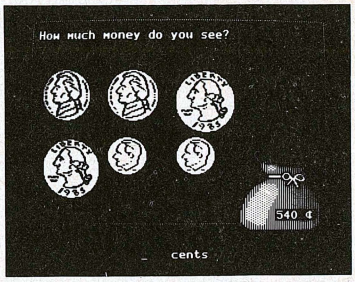

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The Computing Teacher, Feb. 1985

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SOCIAL STUDIES

ANYTOWN, U.S.A.

Curriculum Objective:
Learning about communities
Computer Skills:
Creative use of graphics programs

In this lesson, students use a computer graphics program to create a make-believe town. In the process, they'll learn ways that real businesses use computers every day.

Preparation: You'll need a graphics program, such as *The Print Shop* (Broderbund), *Principal's Assistant* (Mindscape) or *Printmaster Plus* (Unison World). You should also have on hand lots of formatted disks for students to save their work, a good supply of computer paper, scissors, tape, and markers or crayons.

Discussion: Confer with students about the kinds of businesses generally found along the main thoroughfare of any town. Possibilities include a newspaper office, movie theater, restaurant, grocery store, and Mayor's office. List all the ideas on the chalkboard. Next, talk about the different ways computers could help these concerns. For example, the newspaper office could use the computer to write and print articles about town happenings. The movie theater could print admission tickets and a billboard advertising the movie that's showing. The restaurant could make a menu and placemats. The grocery store could design front window displays, product descriptions, size and price information, and coupons. Each of the businesses could also make banners with the company names and logos. Perhaps the Mayor's office could issue good citizenship awards as well as printing banners announcing town events.

Activity: Tell students that they are going to create their own town. Take suggestions and vote on a name for this town. Divide students into small groups and let each group choose a business from the list on the board. Boot up your graphics program and let the groups go to work creating the props they'll need to "run" each business. Distribute the markers or crayons for students to add color to their props.

Encourage children to role play while they work; they should think up names and titles for themselves as well as a name for their business, and should talk within their groups as if they were really "on the job." You might even have each student keep a computer graphic picture diary from his or her character's perspective. As the activity progresses, the diary would comment on the things the character does while "on the job," the people he or she meets and the places he or she visits on a walk down Main Street.

Assign each group wall space to display its props. Soon your room will seem to be lined with shop windows! When the "town" is finished, take a tour around Main Street and ask each group to explain its business to the rest of the class.

Extension Activity: Pick a specific era, such as the pre-Civil War years or the 1920s, and create a historical town. Have students brainstorm what different kinds of businesses would have been on Main Street during this time. Then repeat the above activity from this historical point of view!

Carol S. Holzberg
Shutesbury, MA

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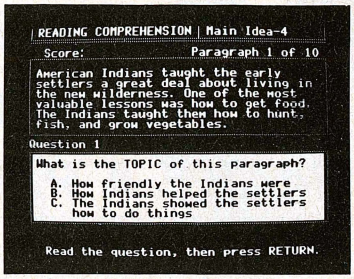

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SCIENCE

MAKE A PAPER DATA BASE

Curriculum Objective:
Analyzing facts about the solar system
Computer Skills:
Learning how a data base works

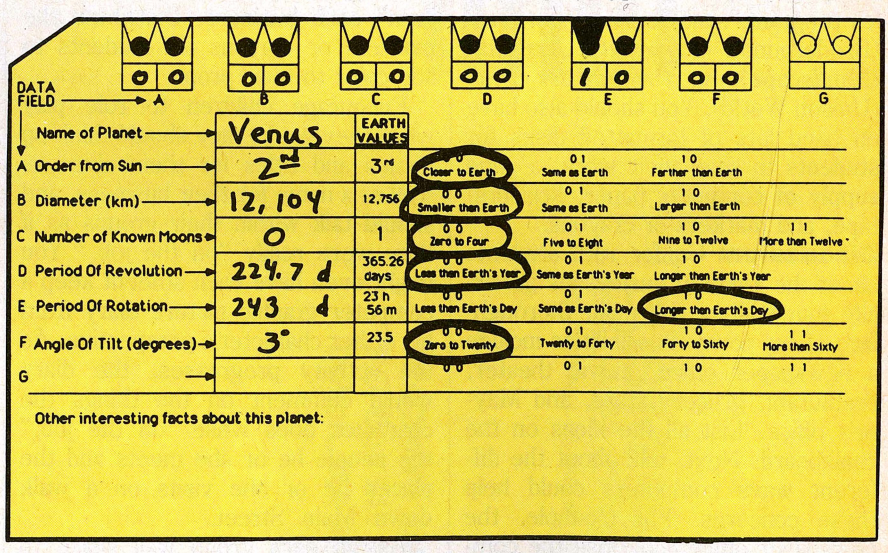
What actually happens inside a computer when it sifts through the information in a data base? The computer's logic circuits compare binary (base two) number patterns in the form of electrical pulses and pauses which encode each piece of data, looking for similarities or differences among them. In this lesson, you will assemble a very simplified "paper data base" to bring this concept to life for your students. The data base presented here uses information about the solar system, but it can be adapted to any topic.

Materials Needed: Paper; oaktag; single hole punch; scissors; knitting needle, thin wooden dowel, or pencil which will fit through the hole made by the punch.

Preparation: Create by hand or on your computer nine copies of a planet file card modelled after the one at right. Each card must be exactly the same size; ours were all 12 ½" X 7 ½". Paste the cards onto oaktag to make them more durable. Use your hole punch to punch out the 14 holes along the top of the cards. Make sure the holes and the slanted upper left corner align when the cards are stacked on top of each other.

Copy the Solar System Data Chart (below) on the board, or retype it with your word processing program and print out nine copies. Divide the class into nine groups, and assign one planet to each group.

Discussion: Tell students that they are going to put together a *data file* containing information about all the planets. Explain that each card represents a *data record* on a specific planet. Have students look at the six lines, lettered A–F, on the left side of each data card. Explain that these are *data fields* which students will fill in with *values* — statistics relating to the planet's size, location, and so on. Point out that there is a seventh, blank field (lettered G) which can contain any type of information cho-



Punch out the holes along the top of your file cards. Cut a notch above each hole coded 1.

SOLAR SYSTEM DATA CHART

NAME OF PLANET	Mercury	Venus	Earth	Mars	Jupiter	Saturn	Uranus	Neptune	Pluto
ORDER FROM SUN	1	2	3	4	5	6	7	8	9
DIAMETER (km)	4,878	12,104	12,756	6,786	143,800	120,660	52,290	79,500	3,100
NUMBER OF MOONS	0	0	1	2	16	20	5	2	1
PERIOD OF REVOLUTION*	87d	224.7d	365.26d	687d	11.86y	29.5y	84y	164.8y	247.7y
PERIOD OF ROTATION*	58.6d	243d	23h56m	24h39m	9h48m	10h14m	12h14m	16h48m	6.4d
ANGLE OF TILT (degrees)	28	3	23.5	24	3	27	97.5	29	65

*y = years, d = days, h = hours, m = minutes

Copy the Solar System Data Chart on the blackboard, or type it into your word processing program and make one copy for each group. Students can then use the information to complete a file card on each planet.

sen by the class; this field must be the same on each card, so take a few minutes to discuss and select a field name with your class. At the bottom of the card is room for any other information that students find interesting (this does not have to be the same on each card).

Activity: Have each group fill in its card with the planet name and values for fields A–G, using the Solar System Data Chart and other references.

The next step is for students to encode the information on the cards in a way similar to computer code. Because this is a simplified data base, it relies on ranges of information ("greater than," "less than," and "equal to") rather than the very specific kinds of data a computer can handle. Students will compare each value for their planets (which they have just written in) with the corresponding value for Earth (which is already listed on each card) and then circle the appropriate range. For example, Mercury's value for the field "Diameter" is 4,878. The Earth's value for that field is 12,756. Consequently, the range for Mercury in data field B is "Smaller than Earth."

When they have selected these ranges, students are ready to transfer the correct binary code from the ranges they've circled on the lower half of the card to the proper spaces, bearing the same field letters, at the top of the card. Explain to students that a binary code uses only two numerals, zero and one. To a computer, these numerals represent switches being turned off and on, allowing electricity to pass through or not. In your "paper" computer, a hole will represent a zero, and a cut-out (notched) hole will represent a one. Instead of electricity, a knitting needle will be passed through these holes to search for and sort data.

Make sure students fill in the correct code for all of the fields for each planet. At the top of Mercury's card in field B, for example, students would write the code 0 0, since that is the code for "Smaller than Earth."

Next, turn students' attention to the 14 holes punched at the top of each card. If the code below a hole is a zero, students should leave the hole alone. If the code is a one, a notch should be cut out above the hole to the top of the card along the dotted lines (see the sample card on page 42). If the card is too stiff for small hands to cut, then you may need to do the cutting — it is important for the operation of the data base that the notches be cut accurately.

Stack the nine coded cards in one pile so that their holes align and the slanted edge appears in the upper left-hand corner. Your Paper Data Base is now ready for data searching and sorting.

Activity: Get your students started by demonstrating a data search for all the planets which have a larger diameter than Earth's. Find the data field labeled B — DIAMETER on the top card and look across to find the code above the term "Larger than Earth." This code is 1 0 (pronounced "one-zero", not "ten"). Go to field B at the top of the stack of cards, place the knitting needle through the left hole, and let all the cards go; only those with a notch (representing the numeral one) will drop out. Pick up the bunch which dropped out, re-stack them, and put the knitting needle into the right-hand hole of field B. This time, you are looking for those cards coded with a zero, which means they are not notched. Let the cards go; all of the cards left hanging onto the knitting needle should have the binary code 1 0 in field B — for planets with a diameter larger than Earth's. Look at the specific information on each card to double check your search.

Tell students that the general rule for sorting through the Paper Data Base is: when looking for a one code, look for the cards which drop. When looking for a zero code, look for the cards which *don't* drop.

Your students will be able to do multiple searches with the Paper Data Base as well. To find planets which have a larger diameter than Earth, but a shorter day, for example, students would do the sort as described above; with those cards remaining, they would do a similar sort

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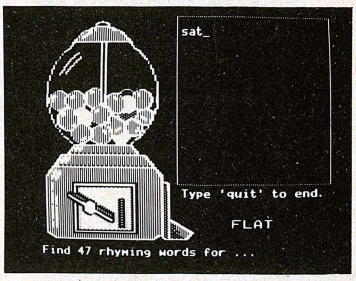

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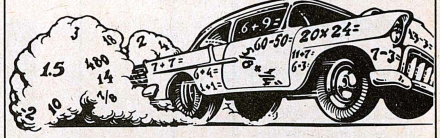

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ELECTRONIC LESSON PLANS

through field E — PERIOD OF ROTATION, looking for code 0 0. Explain that one can perform as many sorts as desired, providing cards remain to work with. No cards remaining indicates that there are no planets with the characteristics sought.

Encourage students to think up their own questions and carry out searches to answer them. Start with simple, single sorts and then build up to multiple sorts. In addition, you can demonstrate to students that sorting with the Paper Data File is quicker than searching by hand: have a contest between two students to find all the planets which have more moons, a longer year, and a greater tilt than earth. Give one student the Paper Data File, and another a set of uncut cards. When you say "Go," have them both search for the information.

Extension Activity: You can apply this paper data base system to any of an array of popular science topics, including dinosaurs, rocks and minerals, plant identification, and animal classification. Once you've selected a topic, have your students help define the fields and their range options.

Michael S. Schneider
New York, NY

THE NEXT BEST THING. . .

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— Mary Dalheim

SUPER SCIENTISTS

Have students create a data file of scientific heroes and heroines. Data fields could include: name, sex, date born, date died, country, field of study, and achievements. Each student may choose a different scientist to enter into the file — Copernicus? Marie Curie? George Washington Carver? Albert Einstein? (Don't forget the pioneers of *computer* science as well.) When the data base is complete, challenge students to:

- Create a list of scientists by field of study, or a chronological list of their achievements.
- Sort the file by two or more categories to create such lists as "Women in Medicine" or "American Inventors Born Before 1900."

COOL CREATIONS

Snowflakes are complex wonders of nature: each one has a pattern all its own. Challenge students to create their own unique snowflake patterns using a graphic arts package such as *Delta Drawing* (Spinnaker) or *Creativity Unlimited* (Sunburst), or any Logo program.

DAYLIGHT SAVINGS

As fall turns to winter, ask students to jot down each day's exact time of sunrise and sunset from the newspaper or weather report. Then challenge them each week to use a graphing program such as *MECC Graph* (MECC) or *Scholastic pfs: Graph* (Scholastic) to show the gradual shortening of days until December 22 — the shortest day of 1987!

SLEEPY TIME

Have students set up a word processing file listing all of the animals under four major headings (mammals, birds, amphibians, reptiles) that *hibernate* during the winter. Then challenge each student to choose one animal and write several paragraphs — from the animal's point of view — about what happens before, during, and after the long winter's nap. ■

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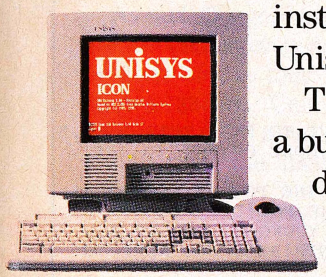

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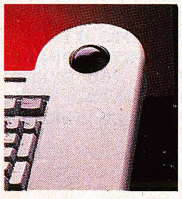
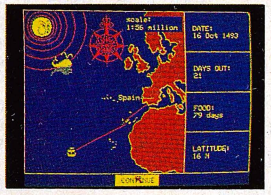


The ICON System feels right at home in the classroom. It's built tough. It's easy to use. All how-tos are on the screen, so kids don't need an operating manual. They simply manipulate a trackball, point to a graphic command, then click the right-handed or left-handed action key.

Teachers told us that kids lose interest with just drill and practice exercises. That's why ICON courseware packages use exciting simulation and animation techniques.



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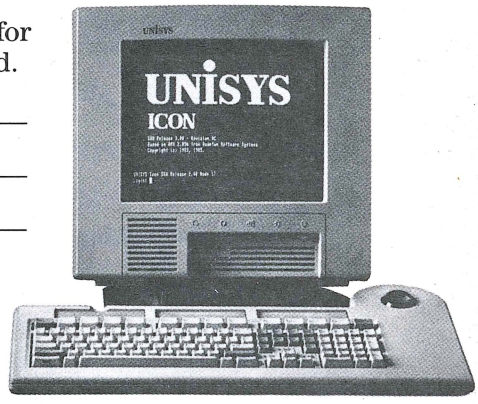

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Michael S. Schneider
New York, NY

COMPUTER CHALLENGES
• FOR KIDS •

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— Mary Dalheim

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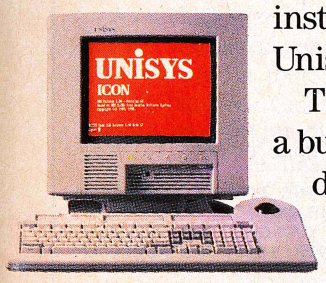

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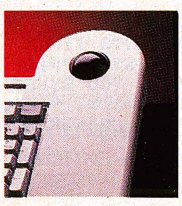

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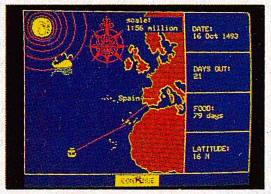

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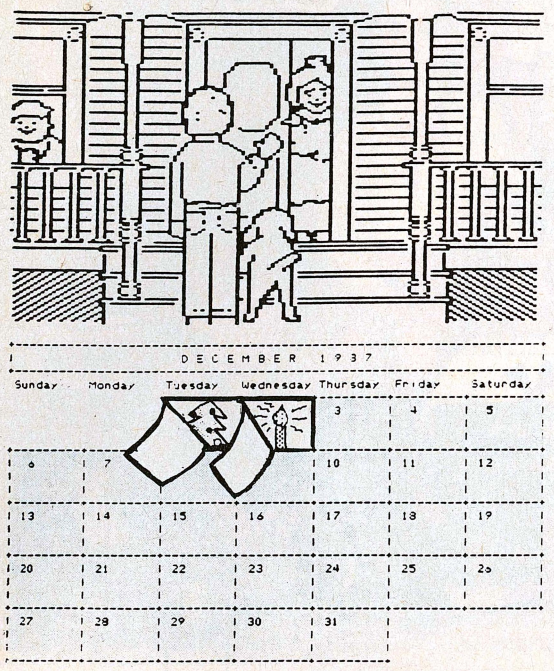
MICRO IDEAS

QUICK COMPUTER TIPS AND ACTIVITIES

HOW MANY DAYS 'TIL CHRISTMAS?



A holiday message to students awaits under each December date when you make an Advent calendar.

PRINT OUT AN ADVENT CALENDAR TO TELL YOU!

Help your students count down the days in December before Christmas with your own classroom Advent calendar. It's easy to make with any calendar-creating software program, such as *Create A Calendar* (Epyx), *Print Shop Companion* (Broderbund), or *Principal's Assistant* (Mindscape).

First, print out a plain December calendar, with only the days numbered and perhaps a few reminders of upcoming special school events. Then create a second calendar for December — this time with fun holiday graphics and comments that build toward Christmas, such as "Only eight more days to go!" or "Where did the time fly? Only four more days left!"

If your calendar software does not provide enough holiday graphics, ask your school art teacher or an artistically inclined student to help you fill in the calendar once it's printed out.

On the plain calendar which you created first, use a razor blade to perforate a "door" for each day. Pin the two calendars securely to a classroom bulletin board, with the plain calendar directly atop the more ornamented one. Each day, have a different student reveal the picture behind the "door" for that day. (On Mondays, select students to open three doors — one for each day of the weekend, as well.) The last picture (traditionally, a Nativity scene) should be revealed right before your students break for the holidays.

Trisha Ainsa
Region XIX Education Service Center
El Paso, TX

DREIDEL, DREIDEL, DREIDEL — I MADE YOU THE COMPUTER WAY

A *dreidel* is a four-sided top, each side marked with a different Hebrew letter. Children traditionally "play dreidel" on the eight-day Jewish holiday called Chanukah. This year Chanukah begins on December 16.

Throughout their long history, dreidels have come in many shapes and sizes, and have been made out of many different materials, including wood, ivory, silver, and even denim. Now, with the help of modern technology, you and your students can create a *computerized* dreidel!

Type in the program listing below, which will randomly generate each of the four Hebrew letters — *nun, gimmel, heh* or *shin* — which appear on a traditional dreidel. Each letter represents the first letter in the Hebrew message *"nais gadol hayah sham"* which, translated, means "A great miracle happened there." The miracle refers to the Maccabees' recapture of the Temple of Jerusalem, which the Chanukah holiday celebrates.

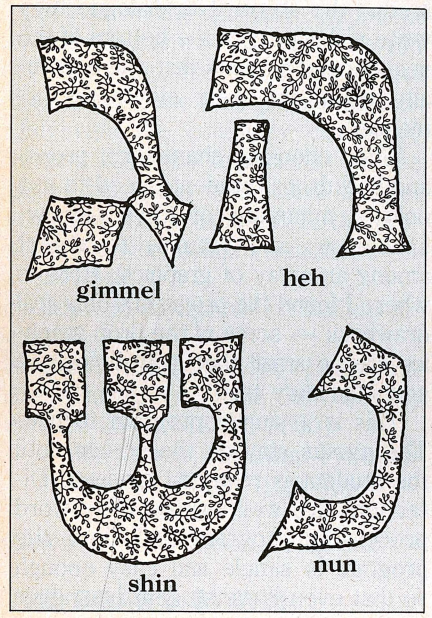
```
10  REM  DREIDEL
15  HOME
20  PRINT "LET'S SPIN THE DREIDEL! THE DREIDEL HAS "
25  PRINT "FOUR SIDES. EACH SIDE TELLS YOU TO DO "
30  PRINT "SOMETHING DIFFERENT IN THE DREIDEL GAME. "
35  PRINT : PRINT : PRINT
40  PRINT "PRESS ANY KEY TO CONTINUE..."
45 R =  PEEK ( - 16384)
50  IF R <  = 127 GOTO 45
55  POKE  - 16368,0
60 X =  INT (4 *  RND (1) + 1)
65  HOME
70  PRINT : PRINT : PRINT : PRINT : PRINT
75  IF X = 1 THEN  PRINT "NUN : SORRY. YOU WILL HAVE TO SKIP THIS TURN."
80  IF X = 2 THEN  PRINT "SHIN : YOU MUST GIVE ONE MORE OBJECT TO THE
     POT."
85  IF X = 3 THEN  PRINT "HEH: HALF OF ANYTHING IN THE POT IS NOW YOURS
    (PLUS ONE EXTRA IF THERE IS AN ODD NUMBER IN THE POT)."
90  IF X = 4 THEN  PRINT "GIMMEL: THE WHOLE POT IS YOURS!   UNLESS YOU
     HAVE ALL THE OBJECTS NOW, HAVE EACH PLAYER CONTRIBUTE ONE MORE TO
     THE POT.    THAT MEANS YOU, TOO!"
95  PRINT : PRINT : PRINT
100  PRINT "DO YOU WANT TO SPIN AGAIN? (TYPE 'Y' OR 'N.')"
110  INPUT R$
120  IF R$ = "Y" THEN  GOTO 10
130  IF R$ = "N" THEN  GOTO 155
135  PRINT : PRINT : PRINT : PRINT
140  PRINT "ARE YOU SURE YOU TYPED A 'Y' OR 'N'?"
150  PRINT "PLEASE TRY AGAIN. ": GOTO 110
155  HOME : PRINT "HAPPY CHANUKAH!"
160  END
```

Have your students use this BASIC program to play the Chanukah dreidel game!

To play dreidel, each player begins with an equal number of objects, such as pennies, peanuts, or candies. Each child puts one object into the "pot" from which players will add and subtract, according to directions which accompany each Hebrew letter on the computerized dreidel. These directions range from "You must give one more object to the pot" to "The

whole pot is yours!"

Have students take turns "spinning the dreidel," by running the BASIC program. Each player must then follow the instructions accompanying the letter he or she is given. The first child to obtain all of the objects from the pot, and leave the other players with none, is the winner.



Can your students use BASIC PLOT statements to draw these Hebrew letters?

As a challenge, have your students create computer-generated graphics of each of the four Hebrew letters shown above. Can your students come up with a way to add these graphics to the BASIC program for added effect?

Jackie Glasthal
New York, NY

TEACH THOSE TYPING SKILLS!

Here are three off-computer ideas that help teach keyboarding skills:

1. Set up a "Hands on the Computer" bulletin board display. Before learning proper keyboarding techniques, children must be able to distinguish right from left. They must also learn that different fingers are used to press down different keys.

To help my young learners master these two concepts, I had each child create a "Hands on the Computer" chart, which we then posted on a classroom bulletin board. After tracing each hand on a wide sheet of construction paper and marking the hands "right" and "left," I helped children write down the proper keys pressed by each finger.

The display also proves helpful as children learn to use the RIGHT and LEFT commands in Logo.

Marilyn Siegel
P.S. 9M
New York, NY

2. Create an off-computer keyboard that feels "real." Due to a limited number of classroom computers, my students practice their keyboarding skills on paper keyboards, duplicated on 8½" x 11" paper. By placing a loose-leaf ring reinforcement on each key, I can give these paper keyboards the feel of the real thing! (Use the thicker self-sticking reinforcements, either white or clear. The vinyl reinforcements are thinner, and more than one is needed per key in order to obtain the desired effect.)

Rather than distribute 45 ring reinforcements at one time, I hand them out as each individual key is learned. This gives kids an added sense of accomplishment.

Meanwhile, by placing the paper keyboards on loose-leaf notebooks with the spine facing away from the "user," we can even simulate the upward slant of real computer keyboards.

Patricia A. Cutlip
Montgomery County Public Schools
Silver Spring, MD

3. Play a game of Keyboard Twister. Learning the placement of keyboard letters and symbols can be fun! Start with a copy of Scholastic's *Computergarten* Keyboard-on-the-Floor, or any large piece of vinyl material with the computer keyboard drawn on it. Out of poster board, create three separate "spinners," one for each letter row on the keyboard. Divide each spinner into enough pie-shaped sections to contain the letters and symbols of that row. Attach a construction paper arrow to the center of each spinner, using a brad.

When it's time to play, lay the vinyl keyboard out on the floor, and have your students sit around the keyboard's perimeter. Then select two students to start the game. Begin by spinning the "home row" spinner. Call out the letter or symbol that the spinner lands on, and have the first child place his or her right or left hand or foot on that key. Next spin the QWERTY row spinner. Call out a similar set of instructions for the second player to follow, based on whatever symbol the second spinner lands on. Spin the bottom row spinner, and call out new instructions for the first child. Have the two players take turns following the direction that you call out until one of the two players falls, or is unable to twist into the position that you call out. Then select two new students, and repeat the above sequence until everyone's had a chance to play!

Virginia Keller
Mesa, AZ

TV GUIDANCE

Use any word processing software, or a desktop publishing program such as *NewsMaster* (Unison World) or *Newsroom* (Springboard), to publish a weekly guide of television shows that are educational or that correlate to classroom studies. Let a committee of young TV addicts help you with the selection. (Use cable TV listings, *TV Guide*, and public relations personnel for local public television stations as resources.) Then assign your committee to write up the selections. Be sure to have them include the channel, day, time, and a short description for each recommended program in the guide.

Mary Dalheim
New York, NY

SEND US YOUR MICRO IDEAS

Do you have computer activities, bulletin board ideas, or management tips you'd like to share? Send them to "Micro Ideas," *Teaching and Computers*, 730 Broadway, New York, NY 10003. We'll pay $15 to $30 for each Micro Idea we publish. ■

SOFTWARE SHOWCASE

SOFTWARE RECOMMENDED FOR TEACHERS, BY TEACHERS

CREATING THE U.S. CONSTITUTION

Computer: Apple II family
Topic: Social studies
Grade Level: 7 and up

When they use *Creating the U.S. Constitution*, students take part in a simulation of the Constitutional Convention of 1787. Major figures and issues associated with the convention are encountered throughout the program, as students role-play characters who are delegates to the convention. As proposals are introduced, the students have the opportunity to participate in the decision-making process. Their goal is to make decisions that are consistent with their chosen character's background and interests.

Each student has the option of choosing a character who is rich or middle class, and from a large, small, or medium-sized state. Once these characteristics are chosen, the student is presented with a short biography of his or her character, and the trip to Philadelphia begins.

The first stop is at Benjamin Franklin's home for some words of wisdom and advice. After that it is up to the student to choose to attend after-hours discussions, and try to learn about the different proposals (such as the Virginia Plan and the New Jersey Plan) by "listening" to what major players like James Madison and Alexander Hamilton have to say.

Although excellent short biographies of key "speakers" are available with the program, some additional background information is necessary for students to understand the references to individuals and events in the program. For instance, Ben Franklin makes reference to Shay's Rebellion, which is not explained in the program.

There are other aspects of the program which could use additional clarification as well. For example, the passage which explains the importance of making decisions true to the assigned character may not be clear to students. Furthermore, although the program implies that speaker biographies are available from any point in the program, this is not the case. In addition, students may need to be reminded of who is speaking at certain points, as speeches can be long.

The program runs very smoothly (although I did find four typos), and the review files and help options are outstanding. My only recommendation would be that the reviews summarize the most important facts stated up to that point in the program, instead of just repeating the last few screens viewed by the student.

The student can stop the program at any point and save his or her progress. However, there is no review of that progress when the program is resumed. Finally, teachers are able to view only work by students who have games in progress. A management utility to keep track of all who have completed the program would be useful.

Despite these minor flaws in design, *Creating the U.S. Constitution* is a truly worthwhile program. The overall content is captivating, and the frequent choices students must make, the immediate feedback, and the well-placed graphics are all outstanding.

Price: $59.95
Policy: 30-day preview; backup included
Source: Educational Activities, Inc., P.O. Box 392, Freeport, NY 11520, 800/645-3739

Kristen Sternberg, Teacher
The Dalton School, New York, NY
(Circle 105 on Product Info Card)

SHOW TIME

Computer: Apple II family
Topic: Language arts/playwriting
Grade Level: 6–9

Show Time will give your students a taste of Broadway. With this tool, students can write their own plays, with up to three characters; select props and backdrops; choose a musical background or compose their own music; and then see their work "performed" on the computer screen. As writers, directors, and producers of their own theatrical presentations, your students will learn all about theater as a medium of communication. And best of all, their resulting masterpieces can be saved for later viewing.

Through the use of the word processing program built into this software, students write and edit their own scripts. They learn stage directions (which they write into the script) and how to use them appropriately so that their characters move around the stage. The dialogue they write will appear at the bottom of the sequence of screens that will eventually make up their play's performance.

When choosing characters, props, and backdrops, students need to use only a minimum of keys (arrow, space bar, and return) to select among an array of graphics. Here is where I found the program's only real drawback — some of the prop graphics are so small that it is difficult to see what they are.

This is a simple program to use. The menus stay on the screen until the student is ready to proceed. Directions are well written. The word processing program built into the program is simple and easy enough so that even if the student has never worked with a word processing program before, he or she will have success with this program. In addition, students can stop at any point in writing a script to see a "rehearsal" of their productions.

The documentation is divided into three parts: instructions, student handouts, and appendix. The instructions are clear enough so that even if this was the first piece of software a teacher or student ever used, it would not take long for mastery. There are also some very useful teacher and classroom activity suggestions. The three pages of student handouts are well written. The first page can be used as a ready guide for the software user, and the next two pages can be used by the teacher to guide the students through the vocabulary and general understanding of the elements of a play. Besides listing software credits, the appendix gives a clear summary of *MECC Writer*, which is the built-in word processing program.

Because it makes learning the ele-

SOFTWARE SHOWCASE

ments of a play challenging, student will want to work with this software time and time again — for hours on end. Even though there is no evaluation component in the software, a teacher need only view a student's efforts to evaluate whether the student understands and has mastered the objectives of the program.

Of course, the greatest component of this program is that students can let their imaginations run wild — and then actually see their plays in action. Only with the computer can every student have the opportunity to see his or her ideas come alive as theater. For that reason alone, the program is a worthwhile investment.

Price: $49

Policy: 30-day preview; backup included

Source: MECC, 3490 Lexington Ave. North, St. Paul, MN 55126; 800/228-3504, 612/481-3500

Mary Drew, Assistant Principal
Summit Hill Jr. High School
Frankfort, IL

(Circle 110 on Product Info Card)

THE BOAR'S STORE

Computer: Apple II family

Topic: Math/money skills

Grade Level: 2–5

If your students like to shop, they'll love *The Boar's Store*. This drill and practice program makes learning to count and make change an exciting challenge.

From the main menu, students can begin by selecting "Counting Coins," either with help or on their own. (If they choose "with help," a cash register keeps a running total of purchases.) This section has three levels — for the upper levels, students need to be able to regroup with addition. Once the level is chosen, students can go shopping for specific items for Halloween, a birthday party, fishing, outer space — there are ten "occasions" in all. Items appear one at a time on the counter of the store, and students "buy" items by using the arrow keys and pressing the space bar to select or unselect.

The Boar's Store presents some items which go with the occasion and others which do not. In the case of

(continued on page 51)

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TEACHER'S HELPER

THE THINK TANK: CONVERSIONS FOR TERRAPIN AND KRELL VERSIONS OF LOGO

The procedures on page 12 work as written for Apple, IBM, or Commodore Logo. For Terrapin or Krell versions of Logo, the following changes are needed:

- In the procedures WILD and LATIN, change EMPTYP to EMPTY?.
- In the PIG procedure, change MEMBERP to MEMBER?.
- Remove the outer brackets in the second line of the procedure WILD, and the fourth line of the procedure LATIN. Remove the second pair of brackets in the second line of the procedure PIG.
- If MEMBER? and EMPTY? do not operate in your version of Logo, check the user's manual to create them as procedures. Most new versions define them as primitives. ■

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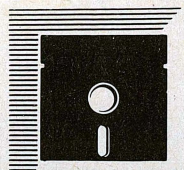

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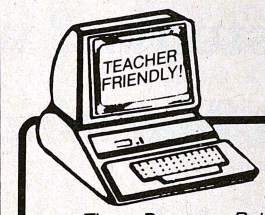

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1988 CLASSIFIED CLOSING DATES:

January issue — November 18, 1987

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April/May issue — February 24, 1988

SOFTWARE SHOWCASE

(continued from page 49)

the Birthday Party option, for example, the items include a party hat, rocket ship, black cat, tack, balloon, and circus tent. It takes categorizing skills to work this program, in addition to mathematical skills. This is an excellent way to "sneak" higher order thinking skills into what could otherwise be labeled a skill/drill workbook on disk. The authors of the software should be credited for going that extra step beyond the normal objectives of such a program.

When the students finish their shopping, they add the prices of the items purchased. According to the level they select, students will purchase two, three, or four items, and are encouraged to use paper and pencil for the more difficult problems.

The remaining two options from the main menu are about "Making Change," either by subtracting or by counting up. These options match the two standard ways of teaching students how to figure the correct change from a purchase. Once the correct figure is noted, students select the number of coins which make the correct change. The amount automatically tallies on a cash register on the screen.

Making change is a teaching topic which is difficult to manage using real or paper coins. Therefore, this simulation on the computer is well worth the investment of funds.

That investment also pays off in excellent documentation which includes worksheets that follow the format of the software. Students will see the same kinds of problems and the same cute-as-button characters.

From beginning to end, this program has been well developed and executed. The graphics are great and the animation is smooth throughout. It is a "must purchase" for software libraries serving grades two through four.

Price: $39.95
Policy: 30-day preview; $10 backup
Source: Random House, 201 East 50th St., New York, NY 10022; 800/638-6460

David Friday, Adjunct Instructor
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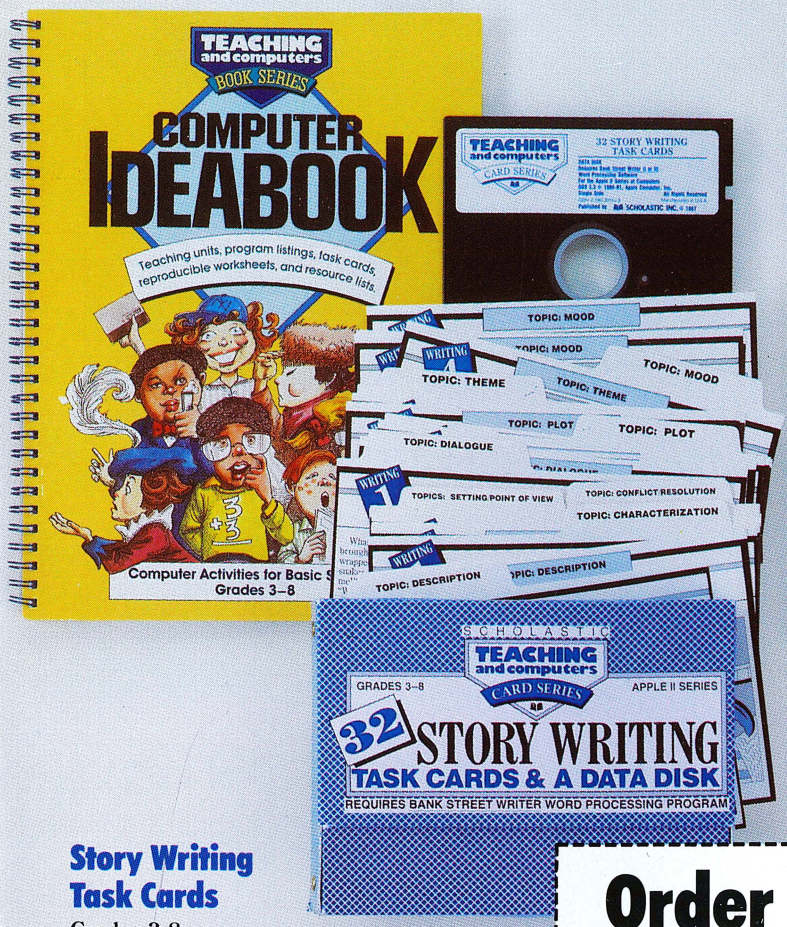

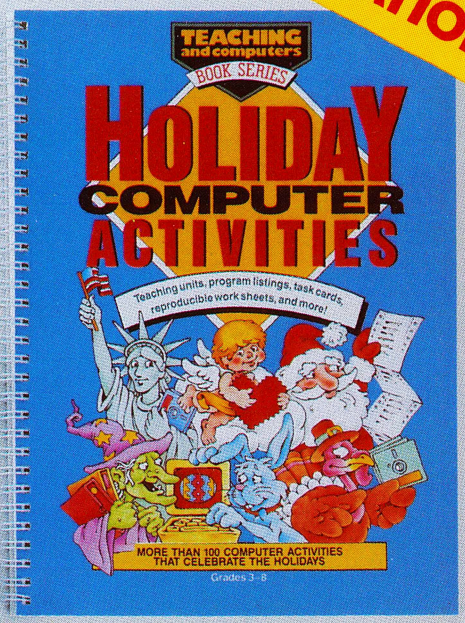

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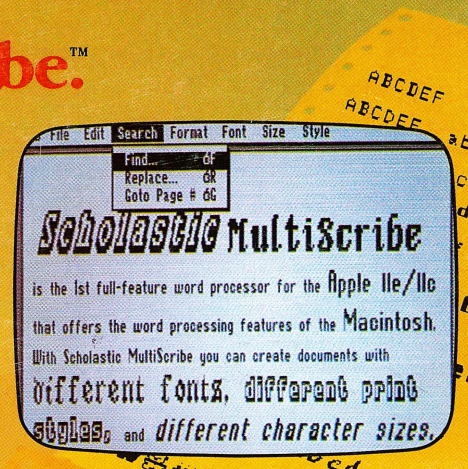

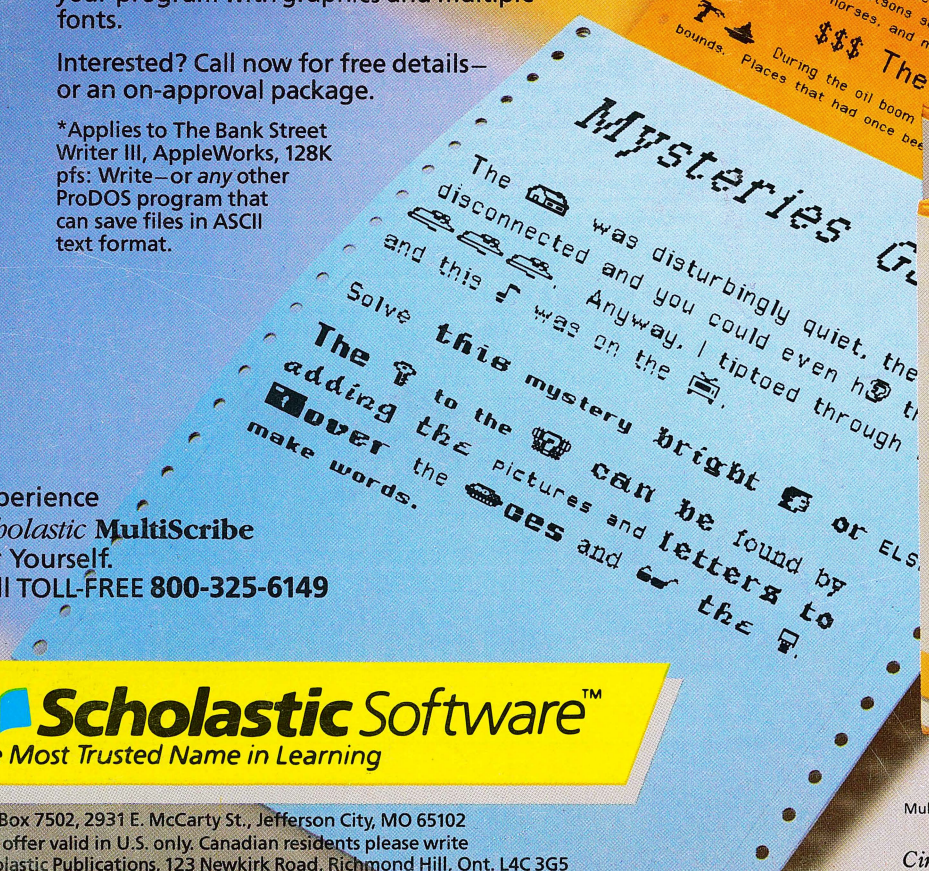

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